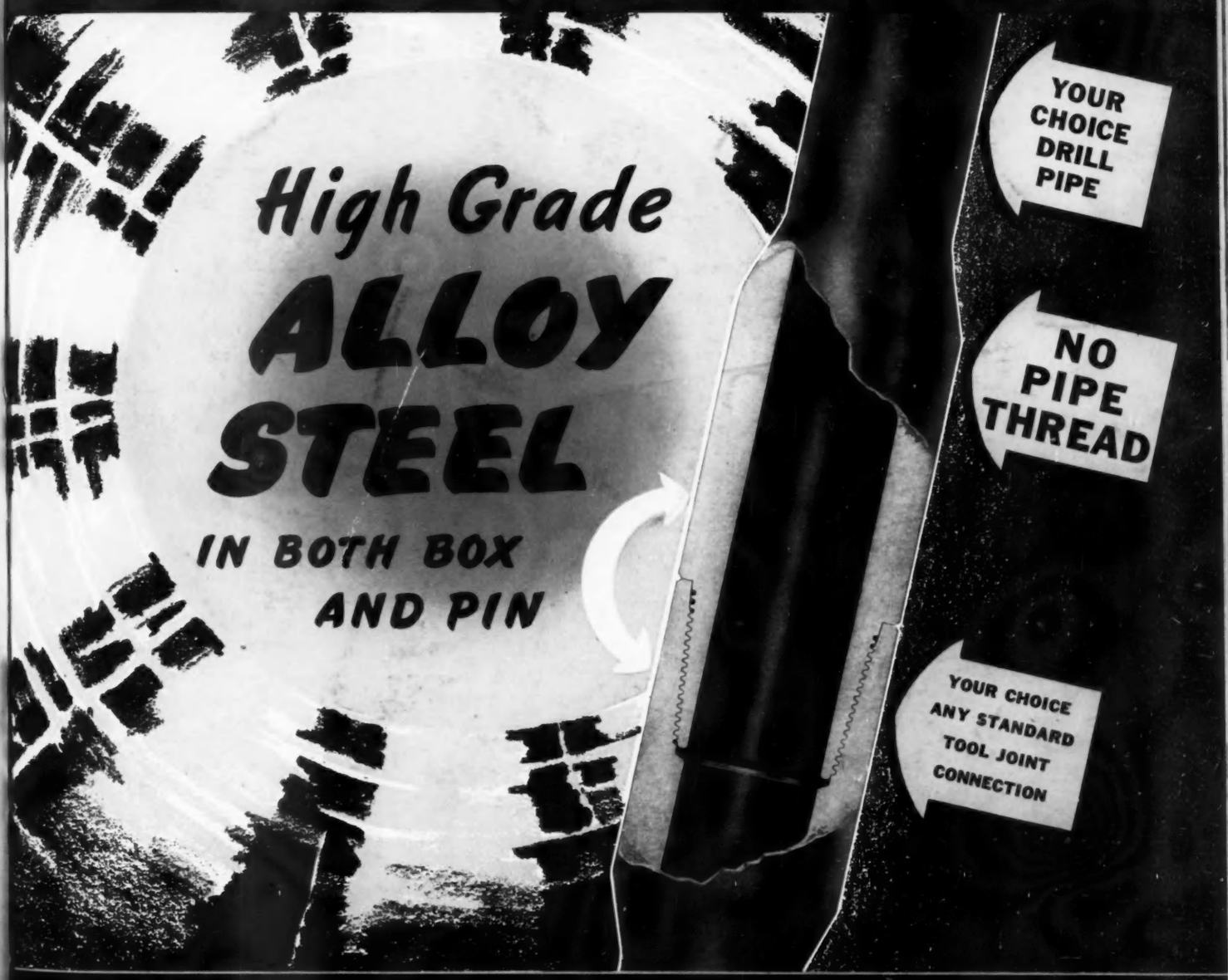


HUGHES
FLASH-WELD
TOOL JOINTS
MAKE POSSIBLE
***UNITIZED* DRILL STEM**

HUGHES
TOOL
COMPANY
HOUSTON, TEXAS

"MAKE MINE STARCOR

W 2407

FIELD: East Texas
TYPE OF JOB: Squeeze, through shot holes
DEPTH OF WELL: 3638 ft. Retainer set: 3617 ft.
MAX. TEMP.: 145° F.
SLURRY WEIGHT: 16.4 lb. per gal.
CEMENT USED: 'Starcor', 150 sacks
MIXING TIME: 15 min.
PUMPING-DOWN TIME: 25 min.
REMARKS: 38 sacks of 'Starcor' pumped out through 20 shot holes with maximum pressure 3700 lb. A salt-water well converted into one making pipe-line oil.

S 3921

FIELD: Eureka
TYPE OF JOB: Casing job, 6-5/8"
DEPTH OF WELL: 7693 ft.
MAX. TEMP.: 190° F.
SLURRY WEIGHT: 16.5 lb. per gal.
CEMENT USED: 'Starcor', 800 sacks
PUMPING-DOWN TIME: 1 hr., 30 min.
MAX. PUMP. PRESSURE: 2000 lb.
REMARKS: No unusual angles -- typical of 'Starcor' performance, day in, day out.

"FOR GREATER LENGTH AND EASE OF PUMPABILITY"

IT'S the follow-through that counts—whether you're taking a cut at curve-ball pitching, swinging your driver from the inside out on the tee—or cementing a casing in a hole with temperatures near the "bilin' p'int." That's why these days Oil Men say, "Make Mine 'Starcor.'" Because 'Starcor' sure has got the follow-through Oil Men need—the greater length and ease of pumpability at high temperatures that spells success, even when the going's toughest.

Use 'Starcor'* for deep, hot holes and extra sulphate resistance. Use 'Incor'* for wells of moderate depth—earlier drill-out, wells on production quicker.

*Reg. U. S. Pat. Off.

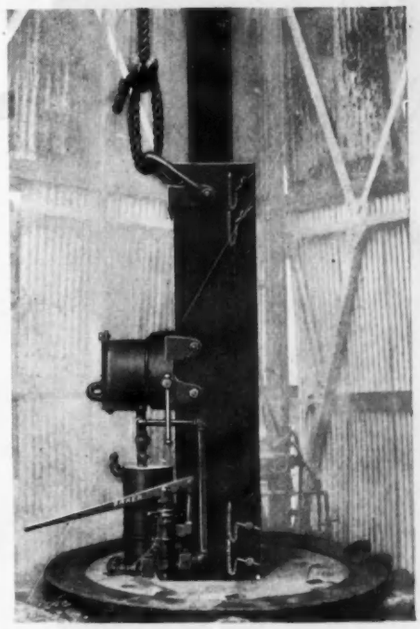
LONE STAR
CEMENT CORPORATION
DALLAS: Santa Fe Building . . . . HOUSTON: Shell Building

USE 'STARCOR'
for deep wells, greater length and ease of pumpability at high temperatures, and extra sulphate resistance.

USE 'INCOR'
for wells of moderate depth—earlier drill-out, wells on production quicker.

SAVE TIME, MONEY AND UNNECESSARY HANDLING

By Straightening Kellys and Drill Pipe The Modern Way



Baker Kelly Straightener in position on rotary table

WHILE THEY ARE SUSPENDED IN THE DERRICK

It's Easily and Economically Done with a BAKER PORTABLE HYDRAULIC KELLY AND PIPE STRAIGHTENER

This highly efficient and easily operated device utilizes the principle of the hydraulic ram, applying the force built up by a manually operated pump to the bend in the Kelly, Drill Collar, or Drill Pipe, as it hangs suspended in the derrick.

COMPLETELY PORTABLE

The entire unit is completely portable (weighing only 1200 pounds), and can easily be transported to the well on a small "pick-up" truck or trailer and set up on the rotary table by means of the catline.

ADVANTAGES OF STRAIGHTENING AT THE WELL

Even though shop facilities may be close at hand, there are a number of important advantages in straightening at the rig—advantages that result in substantial savings in time and money. Probably more Kellys are bent during transportation and in being laid down and picked up than from any other cause. Frequently a Kelly that has just been straightened will again be bent during the process of transporting it back to the well, rolling it off the truck and dragging it into the rig.

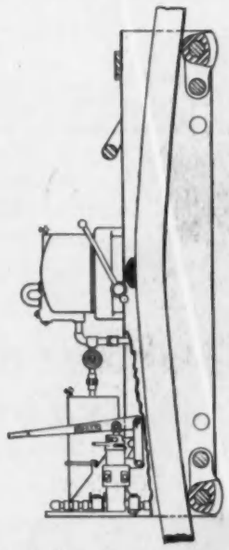
When the BAKER KELLY STRAIGHTENER is used, the job is done right on the rotary table with the Kelly hanging in its normal position. The hazards involved in transportation and handling are entirely eliminated as are also the cost of transporting the Kelly to and from the well, plus the time and expense entailed in removing and replacing it. In foreign or isolated fields, however, the Baker Kelly Straightener is considered indispensable as the cost and loss of time involved in transporting a bent Kelly or drill pipe to and from a distant shop makes it a serious matter.

CAN BE ADAPTED FOR HORIZONTAL PIPE STRAIGHTENING OPERATIONS

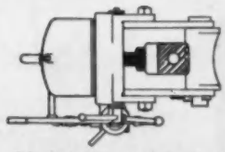
By the attachment of a simple, easily installed device the Baker Kelly Straightener can also be adapted for efficient, horizontal pipe straightening work. The same high efficiency and portability is maintained, plus the advantage of being able to utilize the Straightener for a wide variety of pipe straightening operations around the field and in the shop.

Send today for Complete Details and Prices

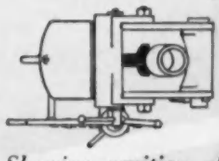
See Pages 270-272 of the 1940 Composite Catalog



Detailed view showing how ram contacts bend in Kelly or Drill Pipe



Showing position of Kelly in Straightener during operation



Showing position of Drill Pipe in Straightener during operation

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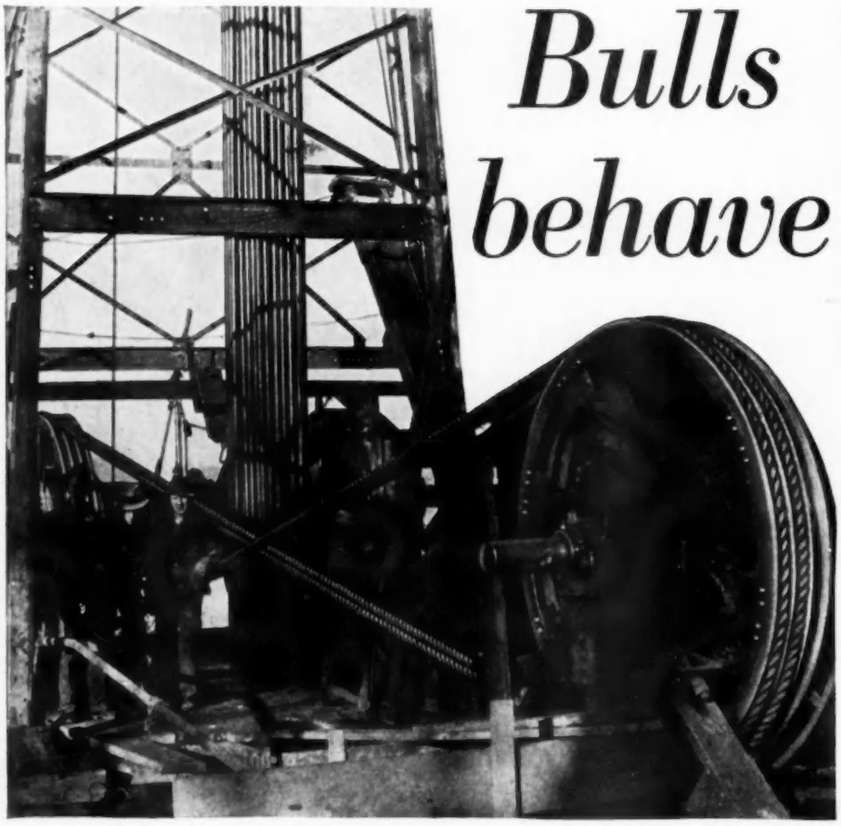

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LOOKING AHEAD

WITH THE EDITOR

Discussion of Methods of Recovering Stuck Drill Pipe.

WHILE much progress has been made in eliminating stuck drill pipe, the expense of fishing jobs is still an appreciable percentage of the total cost of drilling wells. There are two means of reducing this expense. One is to prevent the occurrence, and the other is to improve recovery methods.

A very practical discussion of this subject was presented at the Southwestern District meeting of the American Petroleum Institute by J. E. Warren of Carl B. King Drilling Company. The first part of his paper, which was published in THE OIL WEEKLY of April 1, dealt with the causes and preventions of stuck drill pipe. Next week the remainder of Warren's article will be presented. The forthcoming installment will discuss methods of recovering drill pipe that is already stuck.

Two Methods

The author divides method for recovering stuck drill pipe into two classifications. In the first he includes those methods used to free drill pipe while keeping the drill stem intact, such as the use of oil, circulation of clear water, gas slugging and mechanical means. The second classification includes those methods which are used in case the drill pipe cannot be freed while intact as one unit. This includes backing off, the use of inside cutters, shooting off the pipe, washing over, use of jars, etc.

Application of these methods and a brief description of the best procedure to use will be given.

The OIL WEEKLY, Published every Monday. Entered as second-class mail matter December 23, 1916, at the post office at Houston, Texas, under act of March 3, 1879.

WANTED —

PRODUCTION ENGINEERS to investigate the new money-, time- and space-saving features of BAASH-ROSS Type "W" Casing Heads. Bonus in form of positive suspension, increased convenience in handling, and safe, permanent pack-off.

There's a Reason for Every Advanced Feature

Here is the casing head that is in step with modern field practices. It is compact, has fewer parts, and requires less time and expense for installation. Its distinctive features are backed by logical field-wise reasoning. Read what advantages the *welding method of suspension* offers you:

WELDING IS AN ACCEPTED AND APPROVED METHOD

of suspension, and has been proved to be much stronger than a threaded and coupled joint. By the use of the welding ring instead of slips, creep, wedging action and slippage are eliminated; there is no tendency to collapse the pipe. This method allows the casing to be suspended with precisely the tension desired at any point with maximum convenience.

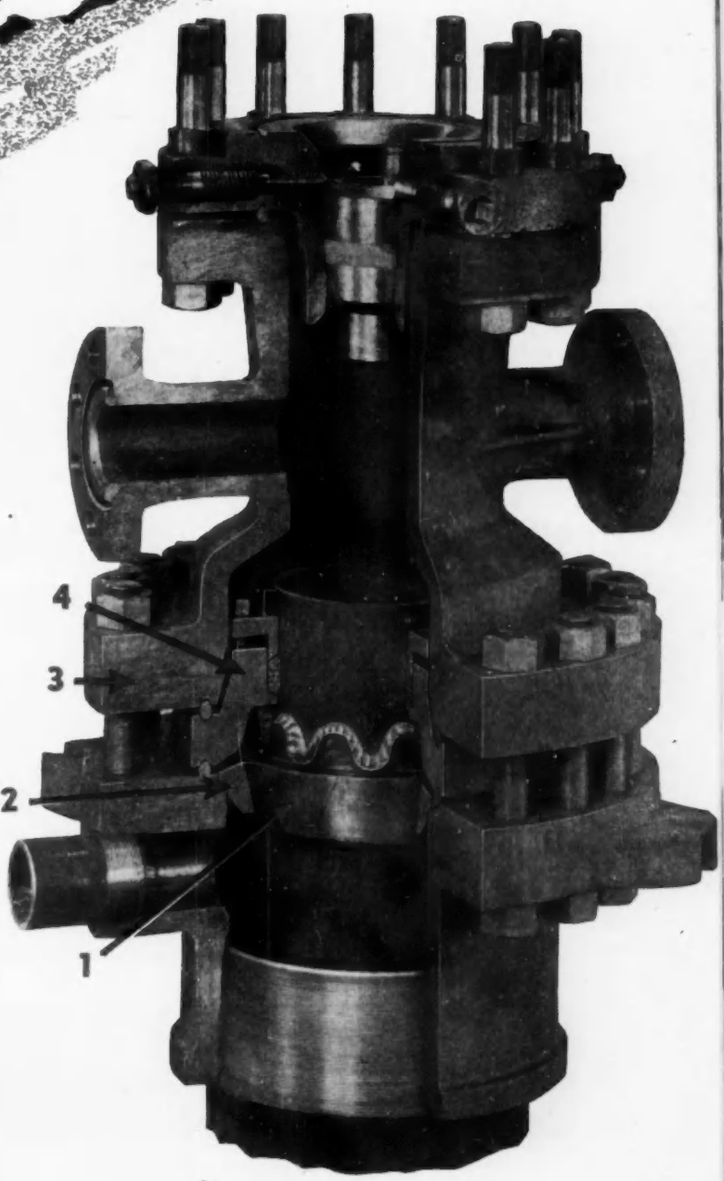
1. THE SCALLOPED WELDING RING places more weld in shear and eliminates line concentration of stress. The scalloped welding ring and the welding ring seat provide a SAFE, ADVANTAGEOUS means of suspension; they are not depended upon for a pressure seal.

2. THE WELDING RING SEAT insures a quick, positive release of the casing from the head at any time, without cutting or damage to the casing or to the casing head.

3. A.P.I. RING JOINT FLANGES are accepted because they afford the safest, most effective sealing means. They promote interchangeability, and enable you to use the leading types of control equipment and all types of BAASH-ROSS tubing head hook-ups with Type "W" Casing Heads.

4. THE INDEPENDENT PACKING GLAND is a time-proved pack-off method. It is an independent unit, easy to install, and assures a positive seal.

SEND FOR COMPLETE ENGINEERING DETAILS
Meanwhile, refer to Pages 179 to 181 of your 1940 Composite Catalog for diagrams of widely used combinations of BAASH-ROSS Type "W" Casing Head equipment.



OPERATING ADVANTAGES

- Casing suspended at any point in the hole without exacting measurements.
- Inner strings can be run, landed and cemented through the control head equipment.
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- KNOWN STRETCH is retained in the pipe when casing is suspended. Overstretching, kinking, loosening of the joints, and damage to the cement job are avoided.

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TOOL COMPANY
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A NEW STREAMLINER...by STAR

Bulletin 82 gives a picture story of ALL the features.

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To get on in today's "streamlined" world, you've got to strip off the non-essentials and make every minute, inch and pound count toward your bank balance. Here's the new No. 82 Speed Star, engineered from end to end on just that plan. It excels for new drilling, tailing in after rotary, swabbing and cleaning out; handles new drilling to 1500 feet and clean-out work to 2500 feet. The No. 82 is "chuck full" of characteristically Star features, including three free-running reels, two-speed bull reel, a truly instantaneous reverse, large air-cooled brakes, and enduring all-steel construction . . . List ALL the features you want in your next drilling machine and check them against the new streamlined No. 82 Speed Star. . . . Get the *full* picture story of this money-maker in Bulletin 82.

★ ★ ★ ★ ★

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- The spacious guest rooms have all new furnishings, including new tile baths with tub and shower—in fact the two year rehabilitation program just completed has made the Hotel Lenox Buffalo's finest.
- The location is perfect . . . a few minutes from downtown and to all terminals, fast buses to all parts of the city. Delicious meals at moderate prices in the Dining Rooms or Lounge Bar.

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Clarence A. Miner, President

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SINGLE: $2.00 to $3.50 DOUBLE: $3.50 to $6.00
Special Rates for Groups and Families.

THIS WEEK

THE advancement of petroleum geology and its relation to the progress of the oil producing industry is recorded in this official A.A.P.G. Number of THE OIL WEEKLY which is published simultaneously with the opening of the Twenty-fifth Annual Meeting of the American Association of Petroleum Geologists and affiliated organizations in Chicago.

While designed to pay tribute to the important contributions made by petroleum geology to oil field development, the articles presented afford oil men an opportunity to familiarize themselves with modern oil-field exploration technique which finds such wide-spread application in current drilling and production practice.

The information has been compiled with the assistance of, and under the official sponsorship of the Executive Committee of the A.A.P.G. Credit also is due to numerous geologists, geophysicists, other members of the profession and service companies.

Below is a list of those whose help was particularly valuable:

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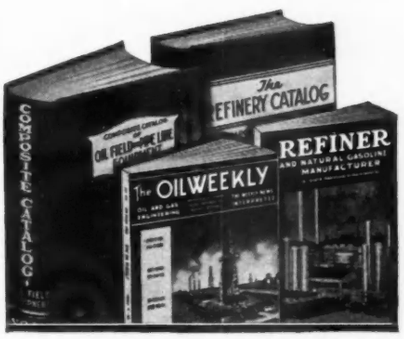

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The Oil Man's Calendar

APR. 9-11	Society of Exploration Geophysicists, Chicago.
10-12	American Association of Petroleum Geologists, Chicago.
11	Society of Economic Paleontologists and Mineralogists, Chicago.
11-12	Petroleum Fluid Metering Conference, Petroleum Division, A.S.M.E., Norman, Okla.
11-12	American Petroleum Institute, Eastern District, Division of Production, Columbus, Ohio.
12-13	American Society of Mechanical Engineers, Petroleum Division, Norman, Okla.
16-18	Southwestern Gas Measurement Short Course, Norman, Okla.
18-19	National Petroleum Association, Semi-Annual Meeting, Cleveland, Ohio.
26-27	Petroleum & Natural Gas Conference, State College, Pa.
MAY 1- 3	Petroleum Industry Electrical Association, Dallas, Texas.
6-10	American Gas Association, Natural Gas Section, Houston.
15-17	Natural Gasoline Association of America, Tulsa.
18-25	International Petroleum Exposition & Congress, Tulsa.
27-31	American Petroleum Institute, Mid-Year Meeting, Ft. Worth, Texas.
30-31 June 1	National Oil Scouts and Land Man's Association, Hot Springs, Ark.
JUNE 1	Illinois-Indiana Petroleum Association, Robinson, Ill.

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Tempered friction springs are located below the reins to prevent interference with rein-and-slip action.

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When equipped with the control attachment (illustrated below in position) the packer can be run in flowing or gassing well with ease safety. When equipped with the co head and a bottom tubing adaptor, (w replaces the packer shoe) it is ide gas lift installations.

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THE OIL WEEKLY

APRIL 8, 1940

VOLUME 97 NUMBER 5

The Week's Panorama

BUSINESS in general has fairly well settled back down around the levels that prevailed before Europe's war brought the temporary boom.

Business lags . . . . .

Late in March volumes of business still were contracting. Barron's adjusted index declined in the week ended March 23 to a new low for the year. At 78.4 it was down a point from a week earlier and 15.4 points under the high point of December, 1939, although still above the 72.5 recorded a year previously. Lagging of business is chiefly in the heavy goods lines. Engineering construction awards have been 20 percent smaller this year than last year, with public construction down more than private work.

Reserve Board Index . . .

Although the Federal Reserve Board index of industrial production has declined sharply from the all-time peak of 128 for last December, the output still is comparatively large. The index dropped to 119 in January and to 109 in February and probably averaged around 105 in March. But for all of 1939, a relatively good year, the average was not any higher, having been at 105 for the year; and only in the last four months of 1939 was it above 102.

Automobile production . .

So far, optimistic expectations for automobile production and sales in 1940 have been fulfilled. The output in the first three months of this year was the greatest for an initial quarter since 1929.

Wholesale trade . . . .

Sales of wholesalers, based upon reports from 2806 firms representing all parts of the country, were 12.1 percent greater in the 29 days of February, 1940, than in the 28 days of February, 1939, figures of the Bureau of Census have revealed. The sales were 1.4 percent under January, 1940. All but two of 36 lines of trade did more February business this year than last year.

Employment . . . . .

Although employment in the United States dropped to 45,391,000 in February from 45,584,000 in January, it was 1,363,000 greater than in February, 1939, the National Industrial Conference Board has estimated. Construction employment dropped more than seasonally in February, and employment in manufacturing was off contraseasonally.

Unemployment . . . .

By subtracting the number of employed from the indicated labor force, the board calculated that unemployment rose to 9,436,000 in February from 9,185,000 in January. The unemployed numbered 8,257,000 in December, 10,105,000 in February, last year, 14,762,000 in dark blue March, 1933, and an average of 429,000 in 1929.

Labor efficient . . . . .

An economist has calculated that the productivity of labor since 1929 has increased about 30 percent and that the gain has made possible a 23 percent rise in hourly wage rates, along with maintenance of manufacturing profits at the levels of the 20's. Credit for the benefits to labor was ascribed to improved machinery—not to labor unions or labor laws.

Where gasoline goes . . .

Despite the remarkable growth of aviation, airplanes consume only 4/10 of 1 percent of all motor fuel consumed in the United States. Automobiles use 89 percent. Agricultural uses, including consumption of tractors, account for 5½ percent, and highway building and other construction work for slightly over 2 percent. Less than 1 percent of all gasoline is used in manufacturing, government activities, marine operations, dry cleaning, and railroading. Somewhat over 2 percent consists of miscellaneous uses and losses.

Geology and wildcats . . .

Geology and geophysics have taken much of the uncertainty out of prospecting for oil and gas. A survey prepared for presentation at the annual meeting of the American Association of Petroleum Geologists at Chicago April 10-12 (published in this issue) shows that approximately 10 percent of the wildcats drilled in the active states of the United States in 1939 were successful. Out of 2589 wildcats, 224 produced oil and 46 gas, a total of 270 producers, while 2319 tests were dry.

War and oil . . . . .

Despite the desire of the British and French governments to conserve foreign exchange, some business interests are convinced that the European war eventually must involve enormous spending, which because of its magnitude must have important effects in the United States. War costs of the belligerents already are approximating those of 1918, despite the limited fighting so far, the vast preparations being responsible. Furthermore, armament expenditures everywhere are relatively great.

The oil industry so far has suffered decreases rather than gained increases in exports of its products. But eventually it may feel the influence of the war at least indirectly, if general business in the United States is stimulated thereby.

Oil-Field Development Is

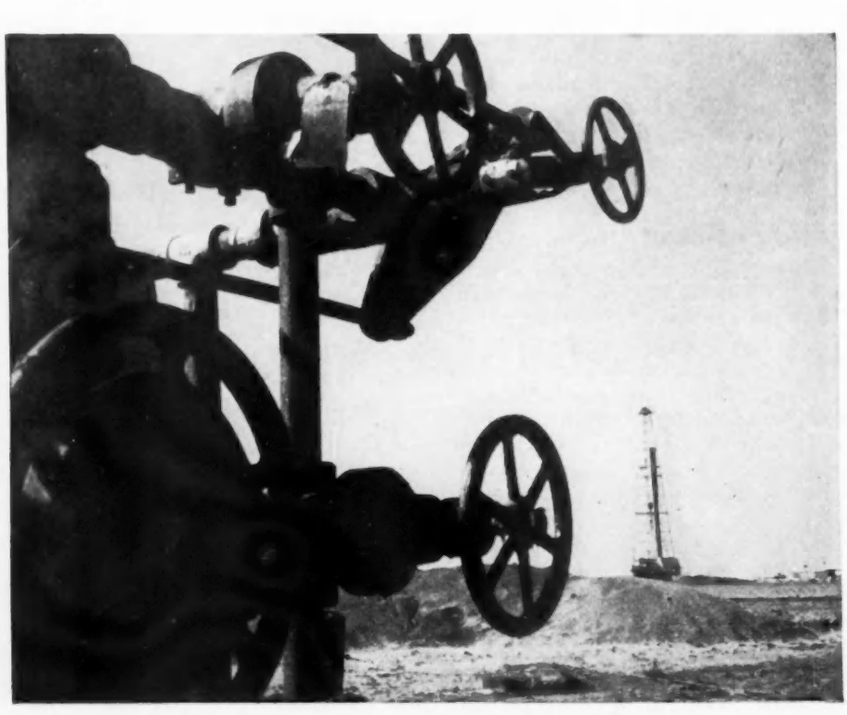
THE contribution of geology to the success of the oil-producing industry has been appraised repeatedly and by divers authorities. The common procedure has been to measure the accomplishment in terms of the number of oil fields or barrels of oil reserves discovered by geologists. Yet it has long been obvious that such computations fail to tell the whole story. Geology has gradually come to occupy a field in the petroleum industry much broader than mere exploration for new reserves.

The evaluation is not easily made. A contemporary philosopher has written: " . . . objective judgments about society are difficult to arrive at. This is because the scientist is a part of the material he examines and occupies a particular position within it; a position usually entailing passionate opinion. He can, however, roughly distinguish such opinion from ascertained facts." For the geologist in the petroleum industry to distinguish opinion from fact requires a nice discrimination and to pass objective judgment he must be possessed of true humility.

In the London office of an international oil company a number of years ago there hung a portrait of a commanding, bearded figure, the company's chief geologist and the alleged discoverer of one of the world's great oil fields. Today the portrait is gone; it was finally removed when the realization became general that dozens of men—geologists, engineers, drillers—all had contributed materially to the discovery in question. With the decline of the age of hero worship eminent petroleum geologists have lost something of the halos that formerly distinguished them. Seldom are oil fields found through the unaided effort of a single individual, however fondly we may cling to the legends of geologic prowess in the professional generation now about to pass.

In the early years of this century when geology first began to make itself effective in oil finding, the established producing companies, overcoming a natural skepticism, promptly resolved to avail themselves of this new and promising aid. To this end they canvassed the staff of United States Geological Survey and faculties of leading universities, seeking to persuade geologists in these organizations to abandon the security and prestige to civil and academic posts for the freedom and greater material rewards of service "in trade." In this manner there was recruited a small army of shock troops in petroleum geology. Following these pioneers there sprang up within a few years in the larger oil-producing centers a class of free-lance experts; consulting geologists whose services were available on a fee basis. Through these consultants the small independent wildcatter also was provided with geologic guidance.

Meantime the larger companies were proceeding to build up geologic departments under their chief geologists, employing for this purpose graduates in geology from universities and colleges all over the country. And to meet this demand the schools in turn rapidly built up courses of instruction in petroleum geology. Young men everywhere rushed into petroleum geology, lured by the fascination of



" . . . the greatest contribution of geology to the petroleum industry arises from its success in impressing upon the industry a comprehension of its own true character."

a Geological Enterprise

By
WALLACE E. PRATT
Director, Standard Oil Company
(New Jersey)

tracking down and reducing to possession this elusive quarry, the obscurely and deeply buried oil field. Thus, within a surprisingly short period the available supply of geologists exceeded the demand of oil producers for purely geologic staffs. Soon these graduates in petroleum geology, unable to secure employment in geological departments of oil companies, began to seek work in other departments. They got jobs as rough necks; as roustabouts; they rose from these lowest ranks to the position of drillers and foremen; they served as scouts and lease men. With this development geology, which had previously been merely a narrow path to a specialist's job in oil finding, widened into a broad avenue of approach to the whole enterprise of producing oil. In due time geologists, having acquired the necessary experience, financed and drilled wildcat wells for themselves; formed their own producing companies. Simultaneously other geologists, having started in various cepacities with the larger producing units, advanced in rank until many of them came to hold responsible executive positions.

In this fashion geologic principles gradually came to permeate the whole industry. For the first time, perhaps, the scientific method began to make itself felt in American industry. Analysis and the persistent search for facts slowly replaced hunch, inherited opinion, tradition and dogma; objectivity established itself over an expanding area of operation. Coincidently with this change, geology manifested a correspondingly increased effectiveness in its own peculiar domain. As long as geology had been dispensed by a detached chief geologist, a consulting geologist, or even a geologic department, carefully insulated from any contact with other producing functions, only a mediocre success in oil finding was attained. But as men with a geologic point of view began to assume responsibilities and to influence decisions throughout the whole oil-producing enterprise, success in finding mounted as though by magic. Dry hole averages decreased, proved reserves mounted, recoveries per well and per acre improved and unit costs declined all through the operation.

So it is that petroleum geology has steadily seeped out through the barriers that once confined it to the field of exploration and discovery, until it literally saturates the entire structure of the oil-producing industry. So all-pervasive has this dissemination been that no longer does any operation of the oil producer escape a geologic coloration. This conquest of the industry by geology has been not unlike the process of metasomatism, to borrow an appropriate if somewhat imposing term from the hard-rock geologists. Metasomatism is that important process in ore deposition whereby the invading solution, although it leaves the outward form or body of the host rock unchanged, nevertheless, entirely transforms its intrinsic character, replacing the original internal constituents, molecule by molecule, with substitutes of its own selection. So has geology reformed the business of producing oil. The industry has refashioned its whole technique, assembling it anew in

[*Continued on page 100*]

Science of Today's Oil Field Exploration

. . . Photographically Speaking

PINNACLE of artistic triumph is this line by Kipling, "and splash at a ten-league canvass with brushes of comet's hair."

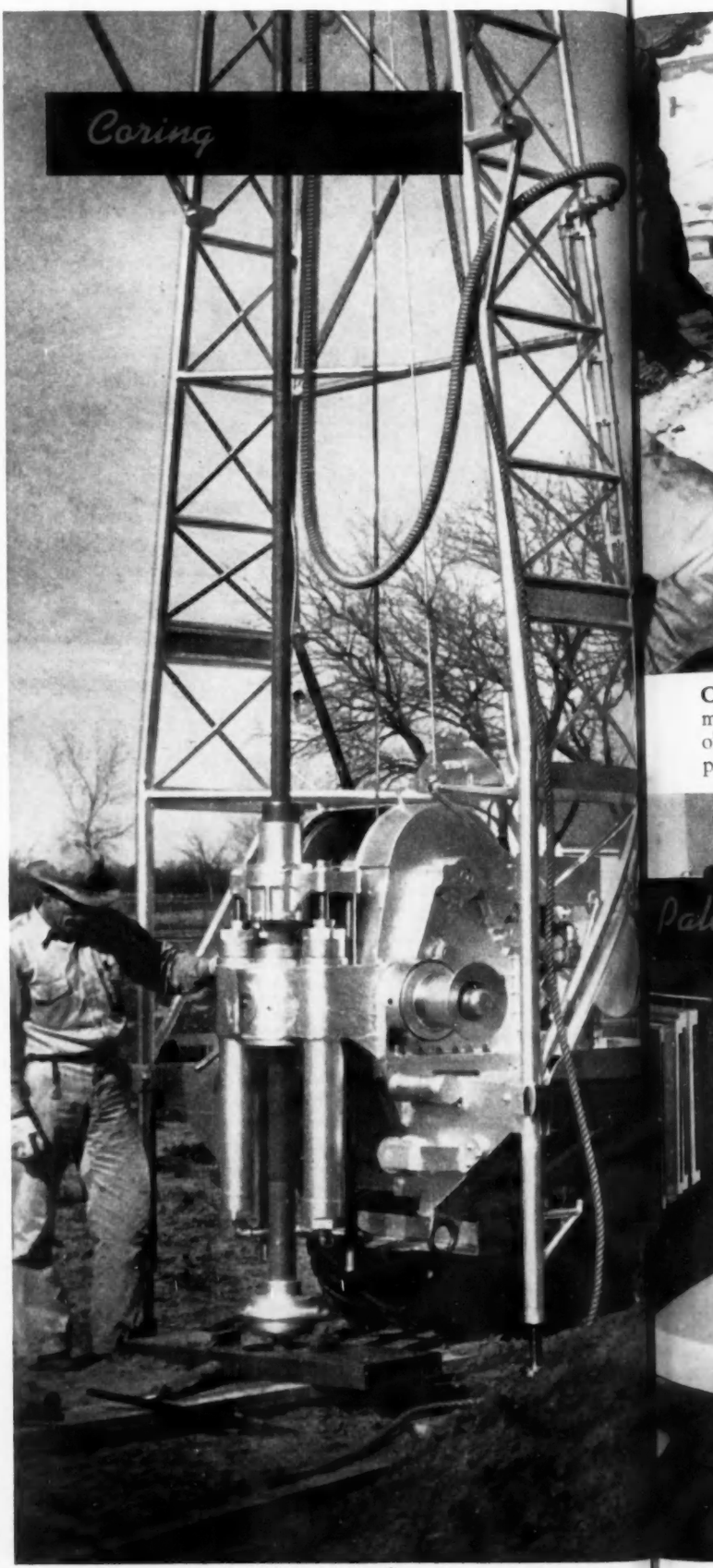
Doubtless every geologist in fantasy has designed a gigantic excavator that could penetrate the sediments, regardless of depth, heal the shaft of bleeding, prevent its walls from caving and thus expose to view the records of geologic time. What he wants to know is buried in the sediments; but where he must work is at the surface. Thus, the petroleum geologist's ingenuity is expressed in combining mechanics, mathematics, physics and chemistry into stratagem by which the rocks are induced to reveal their history.

ALL EXPLORATION BEGINS WITH THE PLANE TABLE

With plane table and alidade, aneroid barometer and spirit level he has mapped surface contours and hoped that no untoward folding made his anticipation of structure a mockery. Today, core drill and cuttings give him much of evidence for submission to laboratory examination; earth shock, detection, amplification and recording give him traces to indicate how the sediments are put together. Attraction of a mass for a mass, or a magnet for a mass, and soil analysis studies, allow a map to be made in harmony with what he can not see.

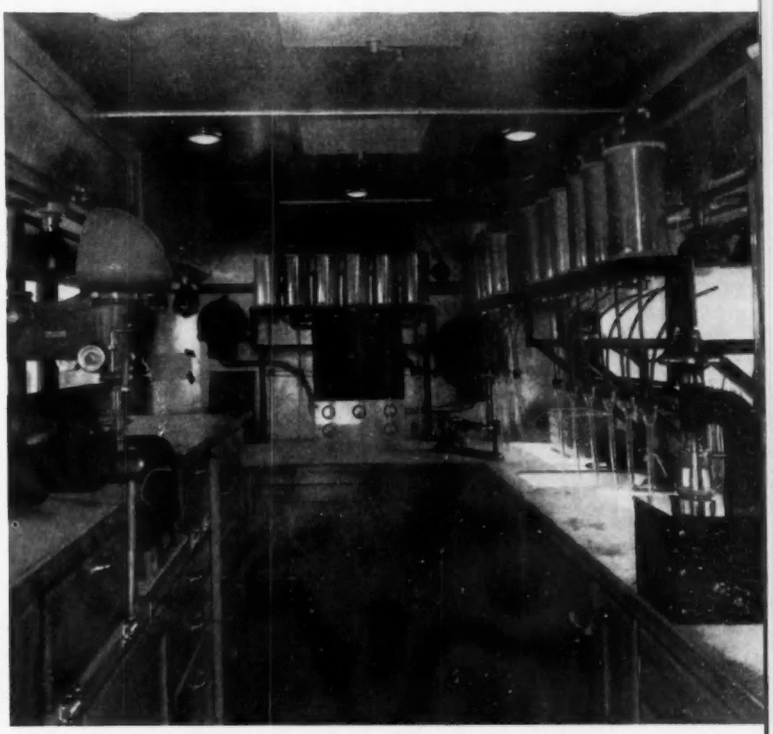
It is singular that none of these devices, or combinations, is the invention of the petroleum geologist. He has borrowed these tools from other fields. Their adaptation to oil field exploration is his contribution. In particular the instruments of geophysics have been so improved and refined that obsolescence overtakes machines before use destroys them. So exacting are the demands of the geophysicist that he makes much of his equipment, consequently five pounds of explosive now give sufficient shock for his galvanometer.

What geologist would not relish opportunity to examine the walls of that impossible shaft? Today's perfection of equipment and technique is rapidly giving him the evidence that such examination would afford.

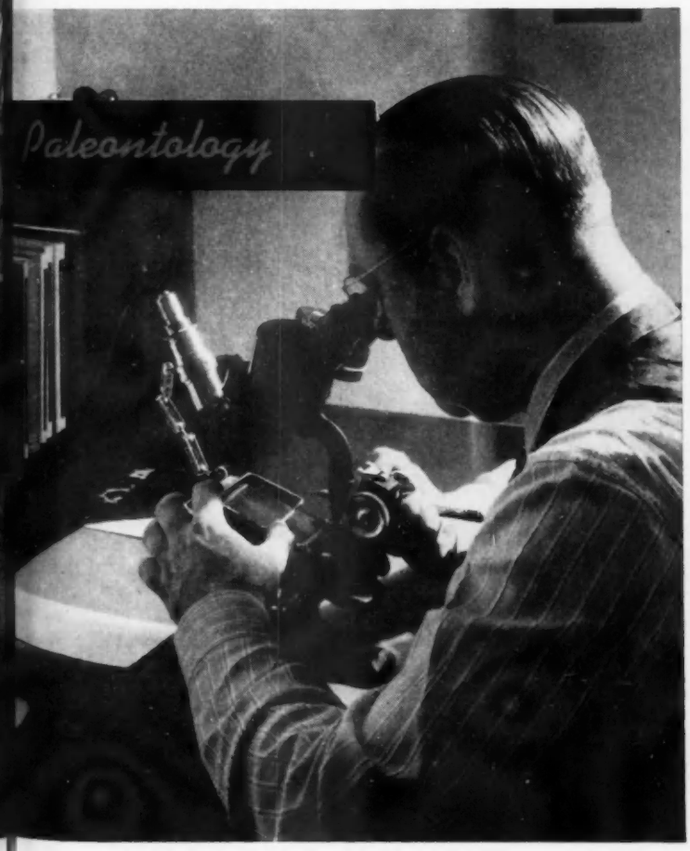


CORE DRILLING, with highly specialized and self-contained units, above, quickly and economically reveals the record of sub-surface strata and eliminates much of the former gamble in prospecting for new oil areas.

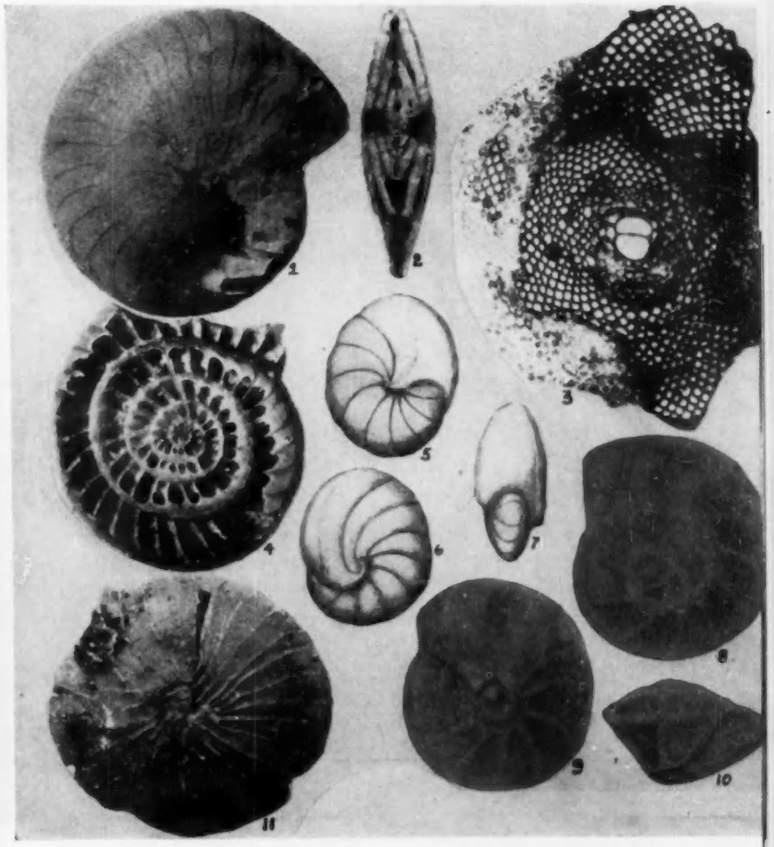
CORE BARRELS and bits are standard equipment on most drilling rigs and in addition to geological records obtained, cores provide information important to the petroleum engineer in selecting production technique.



CORE LABORATORIES have become portable but have every facility for making a complete core analysis, even to estimation of oil recovery. Thus, now in a few hours at the well all may be learned that formerly took days.



MICRO-PALEONTOLOGY became a part of petroleum geology with sub-surface study and fossils are used to establish the age of rocks. The driller knows where his bit is in feet; the paleontologist in geologic time.



WELL SAMPLES in their small cotton bags may look like so much sand, but under the microscope fossils are seen that identify the age of the formation as well as the specific position from which cuttings were collected.

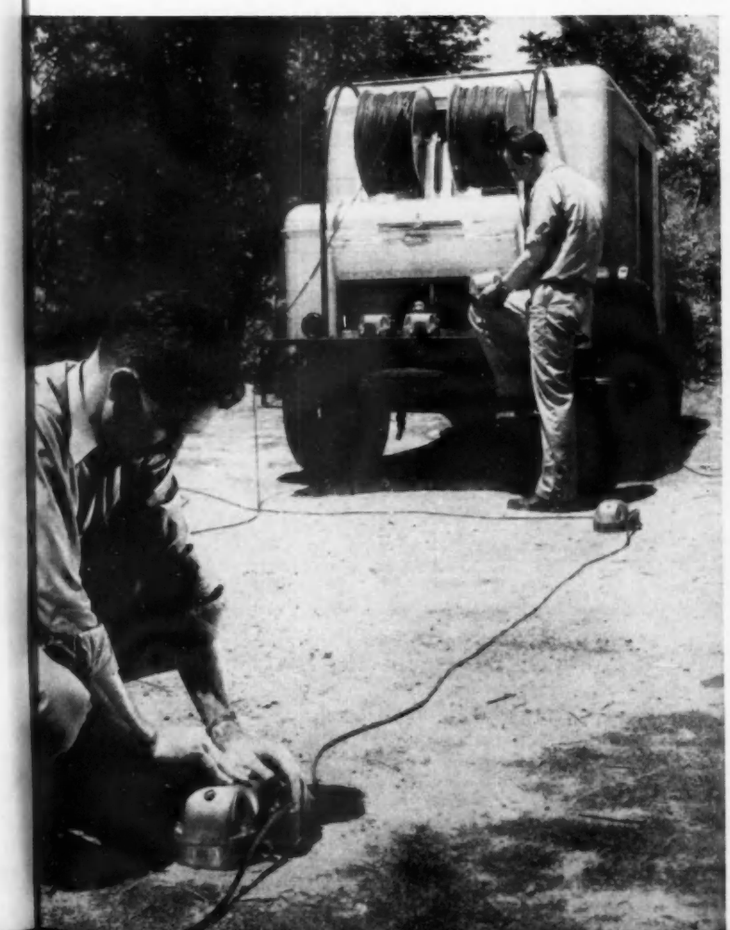
GEOPHYSICAL EXPLORATION has its widest application in seismology, in which explosions, detection, amplification and recording are combined to determine the depth of sub-surface rocks by calculating the speed of sound waves. It all starts with the shot-hole, for which a spudder was the first rig. Now the shot-hole unit is a light, compact, mobile and self-contained unit except for the water truck. It has adaptations for marsh or desert.

SHOT-HOLE LOADING, although it involves the handling of explosives, has been reduced to a routine chore by present day geophysics and the science has developed to where the average charge today is but about 5 pounds.

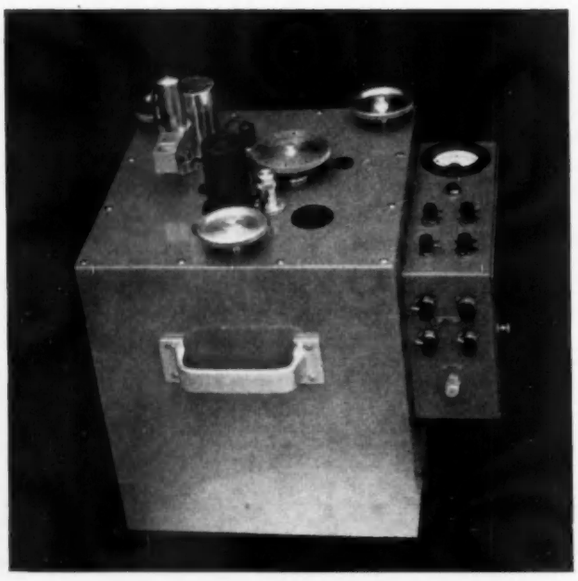
CABLE STRINGING between the recording station and firing point is handled mechanically by the modern cable truck. Push-button control has been adapted to electrically handle stringing and rewinding at fast speed.

SEISMOMETERS for modern reflection shooting are placed on the surface and cable connections can be made without delay. Older types had to be buried and were heavy enough to be a burdensome load for the geophysical crew.

REFLECTION SHOTS today cause such little disturbance that a camera can be used without difficulty even at close range. The contrast with the shock of the old refraction shot indicates some of the progress made.

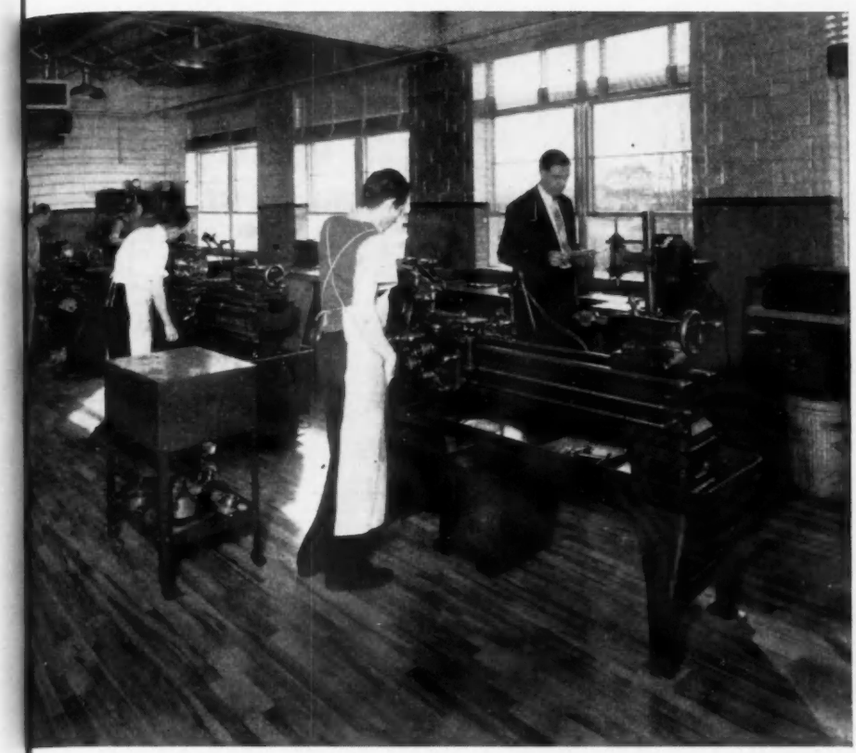


SEISMOGRAMS are the records obtained when the shock from the explosive is reflected back to the surface, picked up by the seismometers, transmitted to recording trucks, where they are amplified and traced on haloid paper by a galvanometer. After development, field notations are made and results are calculated.



GRAVIMETERS map structures by measuring the direct pull of rocks on a small metal piece suspended on a string. The denser the rock mass the greater the extension of the spring. Readings are taken from an indicating dial.

MAGNETOMETERS measure both the intensity and direction of magnetic minerals in the earth on a magnetic needle. By plotting readings on a map and drawing contour lines to points of equal intensity, structural maps are made.

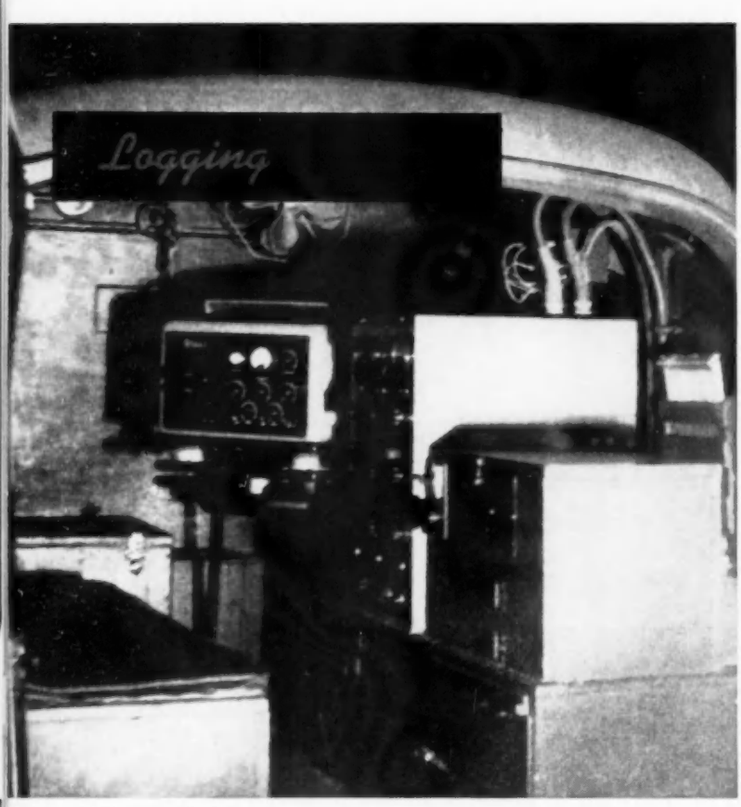


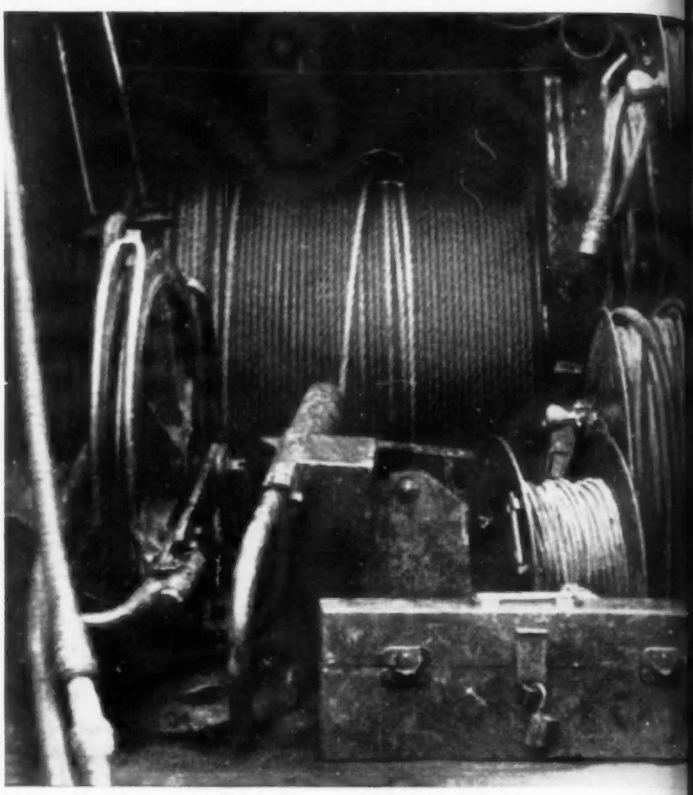
INSTRUMENTS and equipment used in geophysical prospecting are so specialized that a large part must be made and maintained in machine shops under the direct supervision of the geophysicist. Many important contributions have come from such shops.

GLASS BLOWING is an art that finds application in petroleum geology where laboratories require many and varied forms of tubes to meet the exact testing methods.

PORTABILITY is a by-word with geophysicists who designed this unit to be transported by mule-back or by hand for prospecting in remote districts.

SWAMP BUGGIES are among the novel but none the less important special items of equipment that have been designed by geophysicists to facilitate prospecting in areas that otherwise would be inaccessible. Above is typical of many such units that have been successful in conquering Gulf Coast marshes.





ELECTRICAL LOGS assist the geologist today in inspecting formations penetrated for their probable gas, oil or salt water content, as well as other purposes. It is a method whereby formation characteristics are determined by measuring and recording, left above, certain electrical phenomena within the hole. This is done by transmitting electrical current from the surface, right above, through an electrode lowered into the drill hole.

RADIOACTIVITY logging, baby member of the well survey family, is the recently developed technique for measuring the relative intensities of gamma rays from radioactive elements occurring in geological formations, which permit identification of sedimentary rocks. Field set up of gamma ray measuring wheel and Selsyn transmitter, the latter driving the recorder in the instrument truck, is shown at left; with winch truck to right above.

GEOCHEMISTRY is newest science adapted to oil exploration and is employed for the analysis of soil and cutting samples. This is today's scientific approach to the earliest form of prospecting, i.e., the search for oil seepages. By chemical analysis the presence of minute amounts of hydrocarbons can be detected in soil samples thus indicating possible oil accumulations beneath the surface in prospective oil fields.

MAPS SERVE geological prospecting from beginning to end. Particularly valuable is the recently adapted aerial map, perfected by altering projection so each print reflects the curvature of the earth. From such prints a geodetically controlled photographic mosaic is assembled by matching prints. Then the regional base map, below, is made by adding engineering data. Such maps are widely used in present day exploration.

Wildcat Drilling in 1939*

By FREDERIC H. LAHEE, Chief Geologist, Sun Oil Company, Dallas, Texas

IN 1939 wildcat drilling was not as intensive as it was in 1938, and fewer pools were discovered. During 1939, in the states covered by this report, 2319 dry holes and 270 producers (oil and gas) were drilled as wildcats. The total footage drilled was 8,624,602 feet.

This paper was prepared for presentation at the annual meeting of the American Association of Petroleum Geologists, Chicago, April 10-12, 1940.

THIS paper reviews data on wildcat drilling for the fifth consecutive year.[1] The states covered are indicated in Figure 1.

Again, in compiling the data, we have tried to adhere to the definition of a wildcat as a hole drilled completely outside the known boundaries of pools already developed, and far enough from producing areas to be essentially a test of new possibilities. Such a hole would usually be at least two or three miles from production, but, where subsurface conditions may change in short distances and where predictions from the known may turn out to be greatly in error, a test hole may be regarded as a wildcat even if it is only one half or three quarters of a mile from production. This is notably true of salt domes. The term includes all true discoveries of new pools. Where a well in a developed pool has been deepened in search of unknown deeper possibilities, the footage below the old pay sand has been regarded as "wildcat footage"—dry footage if no new pay was found, and discovery footage if commercial oil or gas was encountered. As a matter of fact, however, the total of this class of drilled wildcat footage is a very small percentage of the whole.

On the maps, in Figures 1 and 2, numbers in parentheses indicate total footage drilled; figures preceding parentheses indicate the number of holes drilled; figures above the cross line are for producing wells, both oil and gas together; and figures below the cross line are for dry holes. In the states

*The writer wishes to express his gratitude to the following gentlemen through whose kindness and cooperation the data for this article were secured: A. P. Allison, L. J. Bateman, A. H. Bell, N. Burnett, G. E. Burton, R. J. Cullen, G. F. Fix, G. C. Gester, C. T. Jones, E. A. Koester, Chas. S. Lavington, A. M. Lloyd, D. J. Munroe, Geo. W. Myers, C. R. Nichols, C. H. Row, E. B. Wilson.

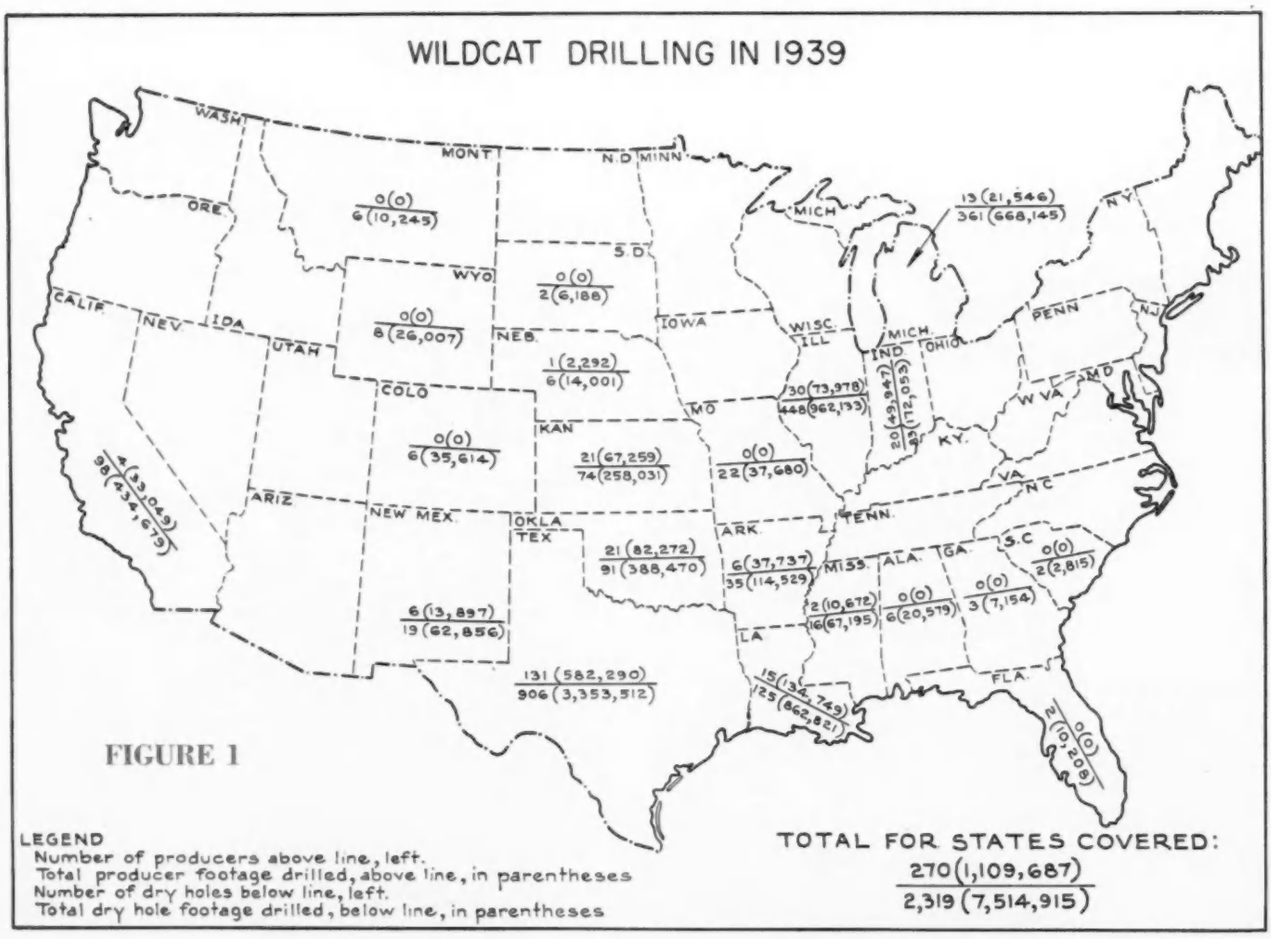


FIGURE 1

TABLE 1

Number of Oil Wells, Gas Wells, and Dry Holes Drilled as Wildcats in 1939

STATES	OIL		GAS		DRY		Total No. of Holes	Total Footage Drilled
	No. of Holes	Footage Drilled	No. of Holes	Footage Drilled	No. of Holes	Footage Drilled		
Alabama	....	.....	....	.....	6	20,579	6	20,579
Arkansas	5	36,119	1	1,618	35	114,529	41	152,266
California	4	33,049	....	.....	98	434,679	102	467,728
Colorado	....	.....	....	.....	6	35,614	6	35,614
Florida	....	.....	....	.....	2	10,208	2	10,208
Georgia	....	.....	....	.....	3	7,154	3	7,154
Illinois	29	70,986	1	2,992	448	962,133	478	1,036,111
Indiana	17	47,822½	3	2,124½	83	172,053	103	222,000
Kansas	19	63,017	2	4,242	74	258,031	95	325,290
Louisiana	8	84,402	7	50,347	125	862,821	140	997,570
Michigan	12	19,521	1	2,025	361	668,145	374	689,691
Mississippi	2	10,672	....	.....	16	67,195	18	77,867
Missouri	....	.....	....	.....	22	37,680	22	37,680
Montana	....	.....	....	.....	6	10,245	6	10,245
Nebraska	1	2,292	....	.....	6	14,001	7	16,293
New Mexico	6	13,897	....	.....	19	62,856	25	76,753
Oklahoma	17	64,386	4	17,886	91	388,470	112	470,742
South Carolina	....	.....	....	.....	2	2,815	2	2,815
South Dakota	....	.....	....	.....	2	6,188	2	6,188
Texas	104	467,277	27	115,013	906	3,353,512	1036	3,935,802
Wyoming	....	.....	....	.....	8	26,007	8	26,007
	224	913,440	46	196,247	2319	7,514,915	2589	8,624,602

covered in this review, as shown in Figure 1, and listed in Table 1, during 1939 a total of 8,624,602 feet was drilled in 2589 holes, divided as follows:

270 producers .....1,109,687 feet
2319 dry holes .....7,514,915 feet

This means that 10.43 percent of the holes drilled, and 12.87 percent of the footage drilled, was successful. The average depth of hole was 3331 feet.

In the southern states district (Figure 2), in 1939, 5,281,014 feet was drilled in 1274 holes, divided as follows:

161 producers ..... 779,345 feet
1113 dry holes .....4,501,669 feet

In this area, then, 12.63 percent of

[*Continued on page 99*]

FIGURE 2

WILDCATS, 1939

TABLE 2

Comparative Statistics for Gulf Coastal Plain States Omitting North-Central Texas and Panhandle of Texas

	PRODUCERS DRILLED				DRY HOLES DRILLED				Total Number Wildcats Drilled	Average Depth of Hole (Feet)	Number of Dry-Hole Feet Drilled for Each Producer Foot
	HOLES		FOOTAGE		HOLES		FOOTAGE				
	Number	Percent	Feet	Percent	Number	Percent	Feet	Percent			
1935	78	7.32	354,834	9.7	987	92.68	3,415,296	90.3	1,065	3,540	9.63
1936	116	10.67	527,286	12.8	971	89.33	3,585,676	87.2	1,087	3,783	6.8
1937	138	12.1	765,690	15.7	1,002	87.9	4,096,990	84.3	1,140	4,090	5.35
1938	142	12.0	785,106	16.1	1,036	88.0	4,083,029	83.9	1,178	4,132	5.21
1939	134	11.5	681,696	14.4	1,029	88.5	4,173,955	85.6	1,163	4,175	6 12

For comparison with statistics covering the southern states and including *all* of Texas, Table III, is given:

TABLE 3

Comparative Statistics for all States Shown in Figure 2

	PRODUCERS DRILLED				DRY HOLES DRILLED				Total Number Wildcats Drilled	Average Depth of Hole (Feet)	Number of Dry-Hole Feet Drilled for Each Producer Foot
	HOLES		FOOTAGE		HOLES		FOOTAGE				
	Number	Percent	Feet	Percent	Number	Percent	Feet	Percent			
1938	200	13.6	984,262	17.4	1,271	86.4	4,667,402	82.6	1,471	3,842	4.74
1939	161	12.6	779,345	14.8	1,113	87.4	4,501,669	85.2	1,274	4,145	5.90

A.A.P.G.

HENRY A. LEY
President, American Association of Petroleum Geologists

S.E.P.M.

GAYLE SCOTT
President, Society of Economic Paleontologists and Mineralogists

S.E.G.

DR. E. A. ECKHARDT
President of the Society of Exploration Geophysicists

Exploration Advancements Theme of Chicago Meeting

A PROGRAM in keeping with with the importance of the Twenty-Fifth Annual Meeting of the American Association of Petroleum Geologists has been arranged by the organization and its affiliated societies, the Society of Economic Paleontologists and Mineralogists, and the Society of Exploration Geophysicists.

With the occasion marking a a quarter of a century of progress and achievement it is befitting that several papers will be presented that will outline the advancement of geology, geophysics and paleontology. A highlight of the convention will be the research committee symposium, at which not only the American Association of Petroleum Geologists will participate, but also geophysicists and production engineers. This session will consider the subject of "New Ideas in Petroleum Exploration with Their Significance to Petroleum Geology." Such topics as chemical engineering, petroleum engineering, geophysics, geochemical exploration, geological field experience, and future of geology will be discussed by able speakers, after which there will be an open forum of discussion.

A number of geological papers are to be delivered on the Illinois Basin area, and should prove highly interesting and valuable because of the attention this territory is receiving. As customary the geologists also will discuss important field developments of the preceding year, and the geology of other regions besides Illinois.

The Society of Exploration Geophysicists, which hold its Eleventh Annual Meeting April 9-11, will study seismic surveying, gravity prospecting, and soil analysis, besides papers of general and miscellaneous interest. The latter group will include brief reviews of various geophysical-prospecting methods.

The Society of Economic Paleontologists and Mineralogists, which holds its Fourteenth Annual Meeting on April 11, has arranged for a number of general papers as well as studies of specific important sectors of the United States.

Three field trips have been arranged in conjunction with the meetings. A pre-convention trip has been scheduled for April 9 to Morris, Illinois, for the purpose of studying the Silurian strata. One post-convention trip on Saturday, April 13, will be to the La Salle anticline at La Salle, Illinois. A second post-convention trip will be made the same day to Kentland quarries of Indiana.

Complete Program Begins Page 95

A. A. P. G.

or to oil men and geologists, the American Association of Petroleum Geologists. Its history is the rise of an industry: Its motive power, an aggressive membership: Its purpose the dissemination of facts on petroleum geology and technology.

By HENRY A. LEY
President, American Association of Petroleum Geologists

THIS issue of THE OIL WEEKLY commemorates the twenty-fifth annual meeting of the American Association of Petroleum Geologists. The association is a part of the American industrial economy. Its existence and its tenure of life are inseparable parts of the petroleum industry, which nurtures it. Its history of progress is that of the petroleum industry. It has an effective membership of 3240; men of the frontier type given, not to philosophies of failure, but to policies of expansion and production. It is a constructive force in the discovery and development of one of this nation's great natural resources—petroleum and natural gas. It is a no less important contributor of geological knowledge.

Man began applying geologic reasoning before the dawn of recorded history as philosophic dissertations on the origin of the world about him. By steps from Athens to Rome and through the Islamic world to the Renaissance, and into the world of our times geologic reasoning has steadily consolidated and advanced. Men in all walks of life have played their part in the unfolding of geology. Many were fearless men. The petroleum industry and petroleum geology will always owe a debt of gratitude to those early prospectors who located and drilled wells as fearlessly as others built railways through hostile Indian lands. These pioneers in large measure made possible present day petroleum geology.

Through all this time the history of geology, like those of the arts and letters, is that of the business man. It has advanced and prospered most in periods of flourishing business. Successful business men and business economies have been their greatest patrons since time immemorial. The golden ages of prosperous business are milestones in the progress of the sciences.

The petroleum industry has contributed most of the known third dimesion to geology. Whereever the industry has flourished there have been marked improvements and progress in geologic thought and technique, maps, and literature. There is still a vast geologic frontier spreading inland from our sand and granite coastlines and outward from our mountain ranges. It has today all the color and romance of the early day West. Geology, and the allied techniques in prospecting, together with an achievement motivated business, will contribute much of the future new real wealth of this nation. The petroleum industry with its creation of petroleum reserves, today and probably for the past decade or more, has been the most important contributor of national new wealth—one of the forms of new wealth which have vitalized the American economy since its inception. We and the industry of which we are a part are heirs of clipper ships, Conestoga wagons, river packets, and the gold spike.

Growth of Petroleum To Modern Oil

IT IS significant that the reason for an organization of petroleum geologists is determined easily. The profession needed and its personnel demanded some means of exchanging thought and experience. That objective has dominated the American Association of Petroleum Geologists through its 24 years and into its twenty-fifth annual meeting.

The first conference of geologists at the University of Oklahoma evidently was not bent on organization, but there was a technical program. At that time there was hope that petroleum geologists might gain affiliation with some existing society. The Norman conference, now in the record as the first annual meeting of the association, did not result in organization—no name was selected nor officials elected.

Prior to this program there were conferences, committee meetings, conversations and correspondence, and in all these the determination to give petroleum geology some forum for expression was unmistakable. It seems safe to conclude that none of this was prompted by the anticipation petroleum geology ever could support an organization of present magnitude.

Outgrowth of Two Unrelated Efforts

Evidently two unrelated efforts preceded the conference at the University of Oklahoma. Two authorities have given the series of events in detail. M. G. Mehl wrote a brief summary of organization for the first number of "The Bulletin" from which the following two paragraphs are offered:

"So far as the writer can learn, the idea of organizing the geologists of the Southwest for the purpose of meeting to discuss problems of mutual interest originated in a conversation between Charles H. Taylor and E. DeGolyer early in 1915.

"At about this same time J. Elmer Thomas sent invitations to a dinner in Tulsa, apparently with something of the same thing in mind as that upon which Mr. Taylor was working. At that dinner, attended by some 40 geologists, Mr. Taylor was given an opportunity to present the matter of organization."*

When Sidney Powers wrote the history of the association in 1928, his version was:

"The American Association of Petroleum Geologists was organized as the Southwestern Association of Petroleum Geologists in Tulsa, Oklahoma, February 10, 1917. The name was changed at the meeting in Oklahoma City, February 16, 1918, upon recommendation of J. Elmer Thomas, the president at that time.

"The use of petroleum geology in Oklahoma commenced in 1913, at which time several of the larger companies employed geologists. The increase in the number of geologists in commercial employment was slow during 1913-1915 and the need for exchange of geologic thought in the Mid-Continent region was not felt until 1915. Early in that year, E. DeGolyer, who was chief geologist for Mexican Eagle Oil Company at Tampico and temporarily a resident of Norman, proposed the organization of a geological society as a university extension project to Charles H. Taylor, then head of the department of geology at the University of Oklahoma, and Professor Taylor assumed the initiative in interesting other geologists.

"Most of the petroleum geologists in Oklahoma, less than 50 in number, had headquarters in Tulsa. Among others J. Elmer Thomas, then geologist for Minnehoma Oil Company, started a movement to organize the petroleum geologists quite independently of Taylor's effort to organize all geologists as a university project. During the summer of 1915 the matter was discussed by many of the Tulsa

Illinois Basin a Geological Triumph

SELECTION of Chicago for the twenty-fifth annual meeting of the American Association of Petroleum Geologists is in itself evidence of the contribution of geology to the petroleum industry. The development of the Illinois basin, a geological triumph, is in part responsible for the meeting being held in Chicago.

The Illinois development is the result of the growth of geological knowledge. An early opinion of geology was that a geosyncline was not favorable for oil accumulation. Existence of gas in the Texas Panhandle was the first evidence to refute this opinion. Later the Michigan basin gave further evidence.

Southern Illinois, long known as such a basin, accordingly became a center of exploration. Geophysical work was started in 1935. Favorable evidence resulted in use of the seismograph with the result that structures were defined. Recently Illinois took third place as an oil producing state.

Oil is playing a return engagement in Illinois because experience and investigation have given petroleum geology improved interpretation of the story the rocks of the crust of the earth have to tell.

* According to J. Elmer Thomas, whose reminiscences on the history of the A. A. P. G. will appear in another oil publication, it was James H. Gardner who suggested an organization, after which Charles H. Taylor announced that he would call a conference at Norman.

Geology a Parallel Achievement

geologists. At one of the informal gatherings Harry R. Johnson, C. L. Severy, H. B. Goodrich and J. Elmer Thomas decided that some kind of a meeting should be held. The question of establishing a branch of the American Institute of Mining Engineers in Tulsa was raised at several informal gatherings and dinners from 1914 onward and at the first Tulsa meeting in 1917.

"On September 8, 1915, Mr. Thomas on his own initiative, sent out invitations to an informal dinner of geologists and on September 25 announced the date as October 2. Reservations were made at the Hotel Tulsa for 32 and 27 geologists were present.

"It was decided at the dinner that an association should be organized according to the proposal of Charles H. Taylor and invitations were mailed on October 25 by him for a geological conference to be held in Norman the next month. The meeting was postponed until January 7 and 8, 1916. Mr. Taylor, as chairman, and C. N. Gould presided at this meeting. Mr. Taylor also presided at a dinner served in the Physics Laboratory. This was a meeting of the geologists of the Southwest and not primarily of petroleum geologists."

Powers' report of that first conference ended with this paragraph:

"Before the close of the meeting it was decided not to perfect an organization but to hold the next meeting at Tulsa. A committee composed of C. H. Taylor, chairman, C. W. Shannon, F. R. Rees and W. E. Wrather was delegated to take charge of arrangements for that meeting."

First Name, Second Meeting

Of the second meeting Powers noted that the program read:

"Program for the second annual meeting of the geologists of the Southwest" and added:

"This again was not designed as a gathering of petroleum geologists but owing to their preponderence at the meeting, the name adopted was "Southwestern Association of Petroleum Geologists." Efforts to have this group affiliated with the American Institute of Mining Engineers were unsuccessful."

The history by Powers included the first thirteen annual meetings and he concluded with this summary and prophecy:

"It [the association] has been a stimulant to the evolution of geologic thought in North America, not only in regard to petroleum, but to the entire field of geology, including paleontology and petrography. It is the largest and most influential geological society in the world and its Bulletin is finding a place in the libraries throughout the world which have ruled against inclusion of periodicals not dealing with 'pure' science.

"The growth from 94 members in 1917 to more than 2000 at the end of 1928 and the steady rate of increase of membership indicates that this young society has a future more brilliant than the past and will continue to grow as long as petroleum and its derivatives are required as fuel."

Since the growth of the association, the development of geology as applied to petroleum and the relationship of both the association and of geology to the oil industry are revealed in the annual programs, a brief consideration of each annual meeting provides the best means of recording history.

The first annual meeting, Norman, Oklahoma, January 7 and 8, 1916, had its international touch when E. DeGolyer discussed the oil fields of Mexico. W. C. Kite gave an outline of a type report on an oil field. First indication of the importance of research came from the paper by Alex W. McCoy, "Some Effects of Capillarity on Oil Accumulation." Wallace E. Pratt was on the program with

[*Continued on Page 41*]

Today's Scope of Petroleum Geology

MEMBERSHIP in the A.A.P.G. has increased to 3240, the world's leading society of geologists. Its assets at the end of 1939 were $107,255.45. Growth revealed in these figures could not have become fact without growth in the scope of petroleum geology.

When organization was accomplished petroleum geology was restricted to structure finding and surface evidence was its only approach. Now petroleum geology includes geophysics, micro-paleontology, petroleum engineering so far as reservoir problems are concerned, and geochemistry. Instead of having completed its work with the finding of structure evidence, petroleum geology is as extensive as the life of an oil well. It has something to contribute through all stages of an oil well from selection of location to determining when it shall be plugged.

With the introduction of proration, petroleum geology and engineering moved into economic and legal phases of the petroleum industry, for the approach to conservation is based on both geology and engineering.

It is safe to predict even wider applications of science to the industry and further growth of the association.

A Preface to Petroleum Geology

1900 - 1922

ALTHOUGH the anticlinal theory gained acceptance before the turn of the century, it was not until oil production moved west of the Mississippi that petroleum geology gained a footing and finally established itself as a major factor in the oil industry. This western development soon put Oklahoma to the forefront and it was here that petroleum geology had its early successes, much of its early investigation, and much of its growth.

Two conditions contributed to this nurturing of petroleum geology in Oklahoma. One was the previous assurance that the area was oil bearing. The other was terrain favorable to surface mapping.

Casual consideration might justify the conclusion that geological study had its beginning in Oklahoma just previous to the formation of the American Association of Petroleum Geologists. The record, however, shows that geological study in Oklahoma was 16 years older than the A. A. P. G.

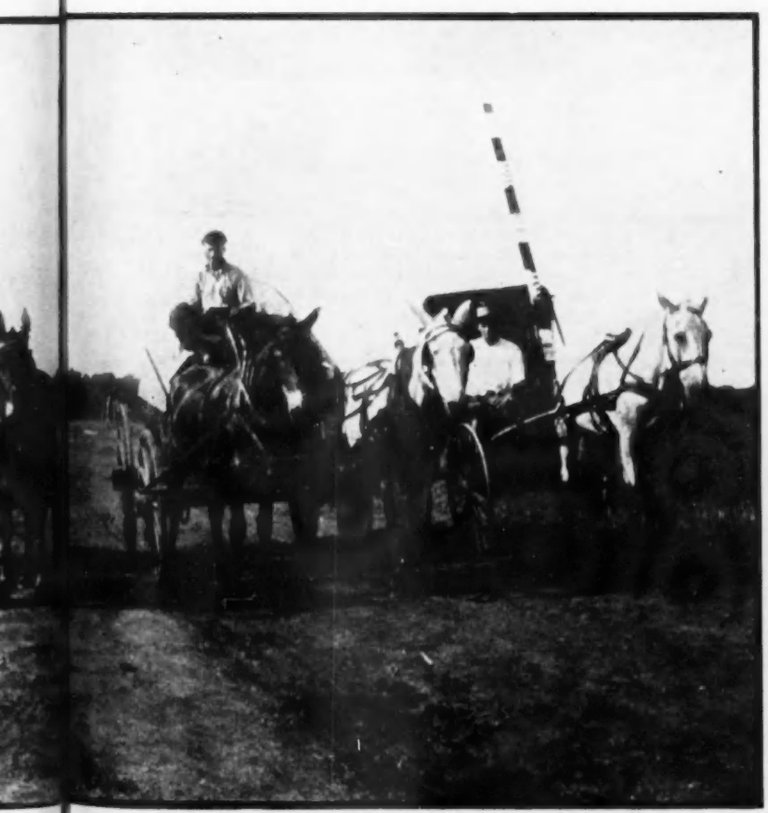
1 **In 1900 Charles N. Gould collected the first fossils ever taken from what is known now as the Oklahoma red beds. This first geological party traveled northwest from Norman. The spot is near White Horse Spring.**

3 **By 1905 the first topographic party in Oklahoma went into "geology's laboratory," the Arbuckle Mountains. Picture shows E. DeGolyer at the plane table.**

4 **In 1909 a party headed by D. W. Ohern covered the eastern part of Oklahoma. Here, the party is seen**

Continued Next Page

2 The Gould party consisted of Hodsell, White and Gould, shown above, in camp in the Gypsum Hills of what today is Blaine County. The party, doubtless, was concerned with geology without any relation to oil, since the oil then being produced was far to the east near Bartlesville in Indian Territory. It was some years later that the application of geological knowledge to probable oil accumulation in the southwest received much attention.



moving camp from the Verdegris River to a point near Oologah, now famous as the birthplace of the late Will Rogers.

5 Search for structure with oil as the objective was established in 1915 when the above picture was made of The Texas Company party in the Osage Hills.

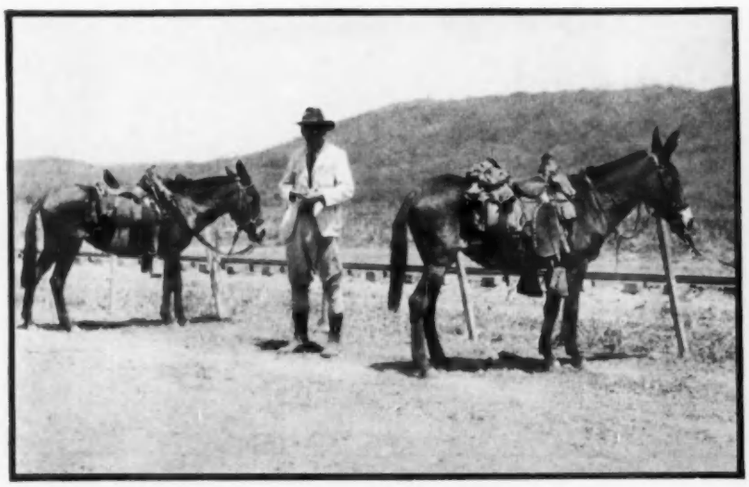
Continued Next Page

6 Highway 66, the "Main Street of America" at a spot between Sapulpa and Bristow as traversed by geologists in 1915.

7 No minor part of equipment for the well equipped geologist of 1917 was the lunch box which is providing the enjoyment shown above by Roscoe Shutt and Glenn Tenney somewhere in Wyoming.

8 In Wilbarger County, Texas, 1917. Picture, made by Roy A. Reynolds, party chief, shows Ford Bradish, Paul Morse (deceased), Lyle Abbott and Roy H. Hall.

9 Many geologists will recall the tent "hotel" days of North and West Texas during the big boom days of 1918-19. This shot taken at Breckenridge was typical.



10 The sure-footed hybrid, still popular in some quarters, carried equipment for G. L. Harrington, now chief geologist for Standard Oil Company of Argentina, during explorations early in 1921.

11 Near the close of plane table era at Big Sinking Valley, Kentucky, 1922. C. B. Bunte at table, Ford Bradish with rod.

"Haworth's New Instrument for Geologic Mapping." Evidently the geologist was bothered by confusion between structure finding and oil finding, for J. Elmer Thomas prepared a paper, in lighter vein, "Doodlebugs and the Licensing of Geologists," which was read by H. H. McKee. The question of ethics has since had frequent consideration by the association. Two men, who later gained the distinction of honorary membership, were on this program: W. A. J. M. van Waterschoot van der Gracht, "The Saline Domes of Northwestern Europe," and Johan A. Udden, "Hints to Prospective Geologists."

From 13 papers on the first program, the number increased to 22 for the second annual meeting in Tulsa, February 9 and 10, 1917. One that stands out because of the discovery of oil in Mississippi in 1939, was by A. F. Crider, "Oil and Gas Possibilities in Mississippi." This program stamped the primary purpose of petroleum geology as the finding of structure, and James H. Gardner read a paper, "Origin and Nature of Folding," which was published in the first Bulletin under the title, "The Vertical Component of Local Folding." There was more of prophetic nature in the paper by N. H. Drake, "'Oil Possibilities in Arkansas." A subject not on the program proper but presented at a night session indicated the trend petroleum geology would take, for Alf G. Heggem talked on "Standardization of Drilling Equipment," a subject later to become a major effort of the American Petroleum Institute. Incidentally Heggem, as a member of the staff of the United States Bureau of Mines, was the first man ever to be designated a petroleum engineer, an activity later so linked with petroleum geology that separation of the two is difficult.

No Danger of Federal Control

That both the industry and geology were moving along was evident by attention being called for the first time to the production from the Simpson formation of Ordovician age and to the possibility of the identification of formations by fossils from well cuttings. The correlation of oil sands, the first step in subsurface studies, was in its infancy.

Oklahoma City drew the third annual meeting, February 15 and 16, 1918. Adoption of a constitution and by-laws, change in the name to its present wording, the presence of I. C. White, and the first effort of the organization to give geology popular understanding were among its outstanding events.

This was during the World War, a fact made doubly impressive by the presence of T. A. O'Donnell, later president of the American Petroleum Institute, who spoke on "The Work of the United States Fuel Administration." The nature of his remarks in the light of current events is striking, for he advised geologists not to worry about federal control but to proceed with their work of finding promising oil structures.

I. C. White showed pictures of the famous Cerro Azul well in Mexico along with his talk on "Gusher Wells of Mexico."

O'Donnell and White also appeared on the evening program, which was open to the public, as did J. F. Kemp with "Geology Applied to Engineering" and James H. Gardner on "Mammoth Cave, Kentucky."

The technical program of 19 papers had two bright spots, even from a viewpoint of 22 years later. Alex W. McCoy introduced the subject of the importance of shore lines in furnishing reservoir rocks, and W. E. Wrather gave a review of development of geological interest in North Texas.

Within one year Ranger and Burkburnett had verified any predictions that Wrather made and within a dozen years the East Texas field gave ample evidence of shore line accumulation.

A symposium on the Ranger field accounted for 14 of the 34 papers on the program of the fourth annual meeting in Dallas, March 13, 14 and 15, 1919. The trend toward subsurface study was indicated by the consideration given to examination of well cuttings and an early start in the introduction of micro-paleontology.

This was the first program to require three days. The year had brought 172 new members and the total was 340. Dues were doubled. Both life and honorary memberships were created. Volume 2 of The Bulletin had been printed and 100 copies distributed.

This interesting observation later was made by Sidney Powers: "Taxation of incomes from oil production by means of complicated laws and regulations led geologists into appraisals and estimations of oil reserves during and after the war. Drawing decline

A.A.P.G. *Presidents*

SOME SAGE has said that every organization reflects the personality and character of the man at the head of it. This, probably, is as good an explanation as could be found for the growth and recognition attained by the A.A.P.G. Its leaders have been those from the top rank of the profession in both character and accomplishment. Herewith are presented in chronological order brief biographies of each president.

1917

J. ELMER THOMAS

Geologist and independent oil operator, Houston. Born in Toledo, Ohio, September 9, 1892. B.S. University of Chicago, 1912. Positions: American Smelting & Refining Company, Sierra Mojada, Coah., Mexico, 1912-13; Minnehoma Oil Company, Tulsa, chief geologist, 1914-15; Chicago Oil Company, 1915-16; chief geologist, Sinclair Oil & Gas Company, 1916-17; chief geologist, Chicago Oil Company, 1917-18; second lieutenant, United States Army Air Service, photographic branch, 1918; consulting geologist, San Antonio, Texas, 1919-20; consulting geologist, Chicago, 1920-25; chief geologist, Shaffer Oil & Refining Company, 1921-24; independent oil operator and president, Thomas Petroleum Corporation, Fort Worth, 1925-28; petroleum analyst, Fenner & Beane, New York and Fort Worth, 1928-30; oil exploration in western Europe, 1930-33 (vice president and general manager, Bavarian Oil & Gas Company).

1918

ALEXANDER DEUSSEN

Consulting geologist; president, East Texas Oil Company; president, Arriola Royalty Corporation; director, Kirby Petroleum Company; director, Schlumberger Well Surveying Corporation; vice president, Federal Royalties Company, Houston. Born San Antonio, Texas, January 19, 1882. M.S. University of Texas, 1903. Positions: instructor in geology, University of Texas, 1905-14; assistant geologist, United States Geological Survey, Austin, Texas, 1907-14; geologist, Gulf Production Company, Houston, 1915-16; consulting geologist, Houston, 1917-25; vice president in charge of Gulf Coast operations, Mariand Oil Company, Houston, 1925-28.

(Continued on next page)

A.A.P.G. Presidents

Continued

1919

ISRAEL CHARLES WHITE

Born St. Cloud, West Virginia, November 1, 1848. Died November 25, 1927. A.B. University of West Virginia, 1872; A.M. University of West Virginia, 1875; Ph.D. University of Arkansas, 1880; D.Sc. University of Pittsburgh, 1922. Positions: associate geologist, Geological Survey of Pennsylvania, 1876-83; professor of geology, University of West Virginia, 1887-92; assistant geologist, United States Geological Survey, 1884-88; West Virginia state geologist, 1897-1927.

1920

WALLACE EVERETT PRATT

Director and member of executive committee of Standard Oil Company of New Jersey, New York City. Born Phillipsburg, Kansas, March 15, 1885. B. A. University of Kansas, 1907; B. Sc. University of Kansas, 1908; M. A. University of Kansas, 1909. Positions: Assistant, Kansas Geological Survey, 1908-09; geologist, Bureau of Science, Manila, Philippine Islands, 1909-12; chief, Division of Mines, Bureau of Science, Manila, Philippine Islands, 1913-15; geologist, The Texas Company, Houston, 1916-18; chief geologist, Humble Oil & Refining Company, Houston 1918-25; elected director, Humble Oil & Refining Company, Houston, 1918; vice president in charge of geologic, lease and scouting, and director, Humble Oil & Refining Company, Houston, 1933-37.

1921

GEORGE CHARLTON MATSON

Born Nebraska, February 4, 1873. Died January 3, 1940. B. S. Doane College, 1900; A. M. Cornell University, 1903; Ph. D. University of Chicago, 1920. Positions: assistant in geology, Cornell University, 1900-02; fellow in geology, University of Chicago, 1904-06; assistant geologist and geologist, United States Geological Survey, 1906-16; geologist with subsidiaries of Gulf Oil Corporation, 1916-21; vice president, Schermerhorn Oil Company, 1922-28; consulting geologist and petroleum engineer, 1929-40.

(Continued on next page)

curves replaced mapping surface outcrops as an occupation for many geologists."

Preview of the Seismograph

Further quotation from the history by Powers concerning the fifth annual meeting, also held in Dallas March 18, 19 and 20, 1920, reveals the manner in which later events shift the spotlight in geological progress. He wrote:

"Consternation was aroused when E. A. Stephenson announced the rapid decline of production in the Ranger field and proved that most of the wells would be a financial loss.

"Johan A. Udden called attention to the possibility of using the seismograph to locate buried anticlines, an idea which was made the subject of experimentation in this country in 1921 by D. W. Ohern."

Evidently Udden read a paper, later printed in Volume 4, Number 1 of the Bulletin, from which this paragraph is taken:

"It has suggested itself to the writer that it ought to be possible with the present refinements in physical apparatus and their use, to construct an instrument that would record the reflections of earth waves started at the surface as they encounter such a well marked plane of difference in hardness and elasticity as that separating the Bend and the Ellenburger formations."

That meeting brought consideration of a code of ethics. Regional sections were authorized. A salary was provided for the secretary-treasurer, whose report showed a balance of $926.89.

Gas had been discovered at Amarillo and there was a weakening in the theory that a geosyncline was not suited for oil accumulation.

Shale Looks Like Next Oil Source

The Bulletin of that year carried an exhaustive article by Earl A. Traeger, then geologist for Empire Gas & Fuel Company, "A Resume of the Oil Shale Industry, with an Outline of Methods of Distillation."

For all that geology had to offer, the fear of that day was exhaustion of crude oil reserves in the United States and shale offered the next available source.

This attitude gained converts in geological circles, within governmental agencies and no doubt among executives of the oil industry, with the result that the sixth annual meeting of the American Association of Petroleum Geologists in Tulsa, March 17, 18 and 19, 1921, brought adoption of a resolution for the naming of a committee "to cooperate with the United States Geological Survey in estimating the amount of national reserve petroleum resources and in informing the public of the seriousness of the reserve depletion."

The technical program of that meeting had papers on the subsurface geology of Kansas and Oklahoma, which gave proof that the Ordovician contained important reservoir rocks, there was recognition of oil and gas production of Lower Cretaceous age in Northern Louisiana, also recognition of buried hills and ridges as the cause of oil accumulation, and a tribute to the diamond core drill as a means of locating structure. For all this, the fear of oil shortage was such that there were papers on the origin and composition of oil shales.

At this meeting Alex W. McCoy gave his paper on the paleogeography and historical geology of Oklahoma.

Regular publication of the association bulletin and a salary for the editor were authorized at the sixth meeting.

The Bulletin Gains Ground

Growth of the association as well as the wider acceptance of geology by the industry were evident from the proceedings of the seventh annual meeting in Oklahoma City, March 9, 10, 11, 1922, where a mid-year meeting was authorized and Denver selected as the meeting place. The Bulletin was being printed six times each year and an advertising manager had the approval of the business committee. The first index for the Bulletin, compiled by J. R. Pemberton, was ready for publication the next year.

By 1923 membership had increased to 900; a report of the treasurer at the eighth annual meeting in Shreveport, March 22, 23 and 24, 1923, showed a cash balance of $12,453.12.

The technical program of this meeting was devoted largely to the Coastal Plain.

Rapidity with which the picture of oil changes can be appreciated by comparison of the fear of an oil shortage of three years previous and this part of the report on the mid-year meeting of 1923 in Los

Angeles, as summarized by Sidney Powers:

"Discussion centered on the depressing effect on the oil market of the new flush production from the Los Angeles Basin."

A Parody Still in Good Memory

A consistent reference in all reports of the ninth annual meeting at Houston, March 27, 28 and 29, 1924, is the entertainment. The parody, "When They Strike Oil on My Daddy's Farm," by the late R. B. Whitehead to the tune of "Alice Blue Gown" was an incident, not yet forgotten.

This meeting marked signal progress within the profession and in the organization. A code of ethics was adopted, a research committee was named, regional directors had been appointed, and surplus funds were put into investments.

The geology of salt domes dominated the technical program of 91 papers. The papers on salt domes later were combined in the volume, "Geology of Salt Dome Oil Fields," which the association published in 1926, the first venture into publication of this nature.

The profession of petroleum engineering gained recognition at this meeting with the following resolution by the general committee:

"That the American Association of Petroleum Geologists considers systematic training in petroleum engineering highly desirable and recommends that more and better facilities for such training be provided, particularly in those states that produce oil commercially."

Within a year, a note in the Bulletin carried the news that Union Oil Company of California had changed the designation of its resident geologists to petroleum engineers.

For the tenth annual meeting in Wichita, March 26, 27 and 28, 1925, the geology of Kansas dominated the technical program of 82 papers. Formation of the Pacific Section was announced at this meeting. The tenth meeting drew attendance of 438 members and these plus attendance of non-members taxed facilities for adequate space, the first indication that the organization was heading into a membership total which later would eliminate some of the smaller cities of the oil territory as meeting places.

The Bulletin increased to 1319 pages for 1925 and for the first time had to be bound in two volumes. Dues were increased to $15 a year.

Establishment of permanent headquarters was authorized at the tenth meeting.

This year brought the geologist into the problem of well spacing. One of the chief studies of the period concerned the absorption and permeability of oil and gas sands.

In July, 1925, the executive committee authorized expansion of the Bulletin to a monthly basis.

Ten Years Build a Scientific Climax

Accomplishments of the profession during the first 10 years of the organization came to a climax for the eleventh annual meeting in Dallas, March 25, 26 and 27, 1926. The scope of this was thus stated by W. E. Wrather:

"The technical program for the Dallas meeting has been built around four major themes—a symposium on the origin of oil and a discussion of the three highly specialized methods of searching for and deciphering buried or obscure structural features, namely, geophysical apparatus, micropaleontology and core drilling.

"The first topic, dealing with the origin of oil, we have ever with us, an unanswered query which today arouses as active and diverse discussion after years of speculation as it did when petroleum geology was in its infancy. We are agreed, perhaps, that oil is of organic origin but at that point our agreement ends. We are unable to state with certainty the types of organic life, whether plant or animal, which contributed the hydrocarbons from which any particular type of oil was evolved. We are in doubt as to whether it originated in liquid form or passes through its primary states as a solid. Our efforts, as petroleum geologists have been largely directed toward methods of locating structure and this continues to be our major aim, as is amply demonstrated by this program.

"We are hunters in pursuit of game whose habits we understand imperfectly. We have perhaps discovered the favorite type of hiding place of our quarry, but the familiar haunts are rapidly being hunted out and if we expect to succeed in the future in locating new sources of oil it is of vital im-

A.A.P.G. Presidents

Continued

1922

WILLIAM EMBRY WRATHER

Consulting geologist, Dallas. Born Brandenburg, Kentucky, January 20, 1883. Ph. D., University of Chicago, 1907. Positions: geologist, J. M. Guffey Petroleum Company (Gulf Oil Corporation), 1908-17; consultant to date. Special lecturer: University of Chicago 1922; Yale University 1930; University of Texas 1927; Northwestern University 1931; Southern Methodist 1935.

1923

MAX WAITE BALL

Consulting geologist; president, Abasand Oils, Ltd.; president, Royal Royalties, Ltd.; Edmonton, Alberta, Canada. Born Munson Township, Henry County, Illinois, September 9, 1885. E. M., Colorado School of Mines, 1906; L.L.M., National University, 1914. Positions: United States Geological Survey, 1906-16; chairman, oil board, United States Geological Survey, 1910-16; mining engineer and law officer, United States Bureau of Mines, 1916-17; chief geologist, Rocky Mountain division, Roxana Petroleum Company of Oklahoma, 1917-18; general manager, Royal Dutch Shell interests in Rocky Mountain region, 1918-21; president, Western Pipe Line Company, 1921-27; Marine Oil Company, 1922-28; Argo Oil Company, 1925-28.

1924

JAMES HENRY GARDNER

President, Gardner Petroleum Company, Tulsa. Born Hardin County, Kentucky, April 25, 1883, B.S., University of Kentucky, 1904; M.S., University of Kentucky, 1906; Ph.D. George Washington University, 1910. Positions: Kentucky Geological Survey, Pennsylvania Geological Survey and United States Geological Survey, 1904-12; consulting geologist, Fohs & Gardner, 1913; later became independent oil producer; organized Gardner Petroleum Company, 1919.

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A.A.P.G. Presidents

Continued

1925

E. DeGOLYER

Consulting petroleum geologist, DeGolyer, MacNaughton & McGhee, Dallas. Born Greenburg, Kansas, October 9, 1886. A.B., University of Oklahoma, 1911; D.Sc., Colorado School of Mines, 1925. Positions: United States Geological Survey, 1906-09; geologist and chief geologist, Mexican Eagle Oil Company, 1909-14; consulting geologist, 1914-19; vice president, Amerada Petroleum Corporation, 1919-26; president, Amerada Petroleum Corporation, 1926-29; board chairman, Amerada Petroleum Corporation, 1929-32; president, Geophysical Research Corporation, 1925-32; president, Felmont Corporation, 1934.

1926

ALEXANDER WATTS McCOY

Consulting geologist, Ponca City. Born Independence, Missouri, February 6, 1889. C.E., University of Missouri, 1912; A.M., University of Missouri, 1914. Positions: research assistant engineer, experiment station, University of Missouri, 1913; instructor in geology, University of Oklahoma, 1914-16; geologist, Marland Oil Company, Ponca City, 1916-17; chief of sub-surface geology, Empire Gas & Fuel Company, Bartlesville, 1917-19; assistant chief geologist, Empire Gas & Fuel Company, Bartlesville, 1919-20; member and general manager, McCoy, Shidel & Pasewalk, geologists and engineers, 1920-21; consulting geologist, 1921-24; first vice president, Marland Oil Company, 1924-29; first vice president, E. W. Marland Company, 1929-36.

1927

GEORGE CLARK GESTER

Chief geologist, Standard Oil Company of California, San Francisco. Born Buffalo, New York, June 16, 1884. B. S., University of California, 1909. Positions: assistant instructor, University of California, 1909; geologist, Southern Pacific Company, 1909-14; geologist in charge of Peruvian exploration, Standard Oil Company of New York, 1914-16; mining engineer and geologist, 1916-17.

(Continued on next page)

portance that we acquire a more intimate acquaintance with the object of our efforts.

"Hence a discussion of the origin of oil will remain a timely topic perhaps for some time to come and it will continue to be worth our while occasionally to take stock of our theories and try to reach some conclusion as to how far we have succeeded in reducing them to demonstrated facts.

"Petroleum geology is in a constant state of flux and an active and adaptable mind is required to keep pace with the progress. It is perhaps well to consider that 10 years ago when this association was organized, it would have been preposterous to have proposed any of the three remaining topics dealt with in this program for the general discussion in a gathering of petroleum geologists. Geophysical apparatus was looked upon with scorn and was classed in the category with the "wiggle stick"; Micropaleontology was of only academic interest and received serious consideration only by a limited few engaged in the study of abstract science; core drilling was considered an expensive and useless waste of time and, in the United States at least, was scarcely thought of as a means of locating structure in regions where surface evidences were wanting.

"Today a new school of specialists are devoting their entire time to phases of geology which only a few years ago were scarcely thought of and which are proving indispensable to the prosecution of the oil industry. The use of geophysical apparatus has been justified by the discovery of a number of salt domes which offer the prospect of a substantial source of oil in the Gulf Coast, and it begins to be evident that such apparatus can be applied successfully to deciphering structure outside the salt-dome region. Core drilling has proven its effectiveness so conclusively that it is now in general use by most of the important oil companies in the Mid-Continent region. And a knowledge of micropaleontology has been instrumental in establishing definite horizon markers in the midst of formation which previously defied differentiation.

"Petroleum geology has in recent years been so split up into highly specialized fields that no one individual can any longer be equally proficient in them all. Not all of us aspire to own or operate a torsion balance or seismograph, nor do we hope to be on terms of familiar speaking acquaintance with the myriad microscopic forms of fossil life entombed in oil-field formations. Yet we cannot afford not to know something about the technique of these several groups of our fellow workers, if for no other purpose than to be able to formulate an independent individual appraisal of their relative value toward solving the problems with which we have to deal in our profession."

The report of the secretary showed total membership of 1504, an increase of 251.

The Society of Economic Paleontologists and Mineralogists was organized at the Dallas meeting.

The First One Without a Doubt

Permanent headquarters was established in Tulsa, July 15, 1926, and J. P. D. Hull, who had been chief geologist of Louisiana Oil Refining Corporation, Shreveport, became business manager.

Despite early predictions and frequent credit to geophysics in previous years, evidently it was June 1, 1926, when geophysics erased all doubt of its effectiveness as this quotation from geological note by Wallace E. Pratt in the October Bulletin of that year indicates:

"There is something new under the sun. For the first time in the Gulf Coast oil industry it is possible to announce, with absolutely no risk that any informed student of the salt-dome area will question the accuracy of the announcement, that a new salt dome has actually been discovered without any well having been drilled to prove the discovery or even to test the area. This is tantamount to the assertion that our confidence in the seismograph (by which this discovery was made) in geophysical exploration has already come to be perfect."

This estimate followed the discovery of Moss Bluff, the work of a crew of Rycade Oil Corporation.

The symposium subject for the twelfth annual meeting in Tulsa, March 24, 25 and 26, 1927, was "Relation of Structure to Petroleum Accumulation," to which 25 papers were contributed. The program had 30 other papers presented and there were 15 on the program of the paleontological society. The scores of papers, read

by title, included many on fields still in active development. Much of the content of the two volumes later published under the title, "Structure of Typical American Oil Fields," was first presented on this program.

The twelfth meeting brought a registration of 1827 and 769 members attended the meetings. Attendance was in excess of anticipation. Banquets in three locations were necessary in providing entertainment. Arrangements were completed for printing the first number of the "Journal of Paleontology," which had been proposed at the previous meeting.

California drew its first annual association meeting in 1928. Sessions were held in San Francisco, March 21, 22, 23 and 24, with Los Angeles the headquarters for March 25, when the fields of the Los Angeles basin were visited.

Overproduction, Then Proration

Overproduction, the word adopted to describe the plight of the industry on account of the output of several Seminole fields, was a theme of this meeting. This paragraph from the report of G. C. Gester, president, is worth comparing with current expressions:

"In some respects the past year has been a trying one for the petroleum industry. The overproduction of oil has been great and prices have been low. Compared to prices received for petroleum and its by-products, costs have been high, and loud has been the cry of "waste, waste." Such cries are much like the old story of the shepherd boy who cried "wolf, wolf." True, there has been some waste, but this applies to gas more than to oil and compared to the total efficiently used output, such waste has been small. And what great industry carries on its work without some waste? Also, who are more keenly interested in the prevention of waste and in promoting the efficient utilization of all products and by-products than the owners and operators of that industry? . . . "

The function of geology and an objective of the association with regard to reserves and conservation was offered in his report as:

"There is no doubt that the studies in the conservation of oil and gas are bearing fruit. The geologist, aided in no small degree by the drill that can penetrate to depths of more than 8000 feet, has been constantly adding to our known reserves. . . . We can by forecasting a continued improvement in geological methods and in conservation practice, see an adequate supply of crude petroleum extending further into the future than at any time in the past. A controlled abundance of oil and gas means a stabilized industry and the American Association of Petroleum Geologists, collectively and through its members, can do its share in the increasing of the crude supply and aiding in means for its efficient conservation."

In regard to research and the estimate the industry has of geology, the presidential report of that year had this paragraph:

"How successfully we have attained this objective, in so far as our efforts have served the petroleum industry, is indicated in the report of the American Petroleum Institute's technical committee. . . . The committee reported that only in one of several scientific or technical divisions of work were the needs of the industry being fully and satisfactorily met by existing organization. That one technical division mentioned was petroleum geology and that one organization the American Association of Petroleum Geologists."

Geology Hit a Peak in 1929

The report of the secretary for that year showed 1282 active members and 664 associate members. Of these 170 had residence in 31 foreign countries. Final details of incorporation were reported at this meeting. That geology was soaring with industry was evident from this part of the report of the fourteenth meeting at Fort Worth, March 21, 22 and 23, 1929:

"More members registered at the fourteenth annual meeting than at any other meeting in the history of the association, 836. More members of the association live in Texas than any other state, 591. Our total membership enrollment is 2126, of which 1496 are active members. Of the 836 members in attendance at Fort Worth, 621 were active members eligible to vote. The annual banquet of other years is evidently outgrown. Presentation of the technical program was mechanically improved this year by means of the microphone and by amplifiers and by preprinted distribution of important papers. . . . "

Geophysics gained a position of a subdivision on the technical pro-

A.A.P.G. Presidents

Continued

1928
RUSSELL SCOTT McFARLAND

Vice president and general manager, Mid-Continent division, Seaboard Oil Company of Delaware, Dallas. Born Denver, Colorado, August 29, 1893. A.B., University of Missouri, 1916. Positions: district geologist, Empire Gas & Fuel Company, 1916-18; consulting geologist, 1918-20; secretary and superintendent land and geological departments, Twin State Oil Company, Tulsa, 1920-29; vice president and general manager, Sunray Oil Company, Tulsa, 1929-31.

1929
JOHN YOUNG SNYDER

Born Winnsboro, Louisiana, January 30, 1872. Died Shreveport, Louisiana, January 10, 1939. Educated at Vanderbilt University and Tulane University. Positions: engaged in engineering and architectural work to 1905; consulting geologist, 1905-39.

1930
SIDNEY POWERS

Born Troy, New York, September 10, 1890. Died, Tulsa, Okla., November 5, 1932. A.B., Williams College, 1911; M.S., Massachusetts Institute of Technology, 1913; Ph.D. and M.A., Harvard University, 1915. Positions: research fellow, Harvard University, 1915-16; division geologist, The Texas Company, 1916; assistant geologist, United States Geological Survey, 1917; United States Army, 1918-19; chief geologist, Amerada Petroleum Corporation, Tulsa, 1919-32.

1931
LOVIC PIERCE GARRETT

Vice president charge of land and lease matters, Gulf Coast division, Gulf Oil Corporation, Houston. Born Glenn, Georgia, October 27, 1880. Attended University of Texas. Positions: assistant to Dr. E. T. Dumble, consulting geologist for Southern Pacific Railroad and Rio Bravo Oil Company, 1903-08; accepted position with Gulf interests, 1908-31.

(Continued on next page)

A.A.P.G. Presidents

Continued

1932
FREDERIC HENRY LAHEE

Chief geologist, Sun Oil Company, Dallas. Born, Hinghary, Massachusetts, July 27, 1884. A.B., Harvard University, 1907; A.M., Harvard University, 1908; Ph.D., Harvard University, 1911. Positions: assistant instructor, Harvard University, 1906-09; instructor, Harvard University, 1909-12; professor, Massachusetts Institute of Technology, 1915-18; United States Geological Survey, 1915; geologist, Sun Oil Company, 1918-20.

1933
FRANK RINKER CLARK

Vice president and geologist, The Ohio Oil Company, Tulsa. Born, Grantsville, Utah, Mar. 14, 1881. George Washington University; B.S., University of Utah, 1910. Positions: geologist, S. Pearson & Son, Ltd., Mexico, 1910-11; United States Geological Survey, 1911-19; chief geologist, Petroleum Exploration and Wiser Oil Company, Sistersville, West Virginia, 1919-23; geologist, The Ohio Oil Company, Tulsa, 1923-36.

1934
WILLIAM BAYARD HEROY

Vice president, Pilgrim Exploration Company, Houston. Born, New York City, October 9, 1883. Syracuse University. Positions: United States Geological Survey, 1908-19; advisory engineer, bureau of conservation, United States Fuel Administration, 1918-19; associate editor, Electric World, 1919; Sinclair Consolidated Oil Corporation, 1919; chief geologist, Consolidated Oil Corporation, 1933-38.

1935
A. I. LEVORSEN

Consulting geologist, Tulsa. Born, Fergus Falls, Minnesota, July 5, 1894. Studied engineering, mines and geology, University of Minnesota, 1917. Positions: United States Army, 1917-19; geologist, The Greenwood Company, 1919-22; Getzandaner & Johnston, 1922-23; district geologist, Gypson Oil Company, 1923-26; chief geologist, Philmack Company and Independent Oil & Gas Company, 1926-30; consulting geologist, 1930-34; chief geologist, Tide Water Oil Company, Houston, 1934-35.

(Continued on next page)

gram for the first time in 1929. The full program included 75 papers, among which was a symposium on the Permian Basin of the United States, with Alex W. McCoy as chairman.

Growth of the sciences related to geology can be appreciated by this report of the president, R. S. McFarland:

"Considering the number of specialized branches in the oil industry today, petroleum geology, per se, has probably reached a saturation point. The association has reached such a size that it is not necessary to continue canvassing for new members."

That the events of a few months hence amounted to something more than lower quotations on securities, was indicated by these lines from the annual report of John Y. Snyder at the fifteenth annual meeting in New Orleans, March 20, 21 and 22, 1930:

Then Came the Depression

"The future of the association, which lies with that of the oil industry, does not seem as promising as it has been at times in the past. Last year's president called attention to the unfavorable condition of overproduction—too much oil. The present unsatisfactory conditions are working hardships on many, but the oil industry is not alone in its depression."

Although total membership had increased to 2292, the report of the treasurer showed a longer list of members whose dues were in arrears.

Technical advancement within the profession, however, was evident from the number of papers on the groups that made up the annual program: Mississippi Embayment, 30; General Technical Subject, 21; Geophysics, 15; Foreign, 5; Paleontology, 26.

The Revolving Publication Fund showed its first profit, $1,666.46. due to the sale of Volume 1 of "Structure of Typical American Oil Fields," the first edition of which was exhausted.

Endowment Proposed for Research

It was at this meeting that the association took hold of research by seeking the creation of a fund of $50,000, "the income of which may be used for the promotion of research projects and activities specifically approved and supervised by the research committee," and this interpretation was put on research by this paragraph from the report of the business committee:

"Research constitutes the foundation stone or the life blood of scientific progress. The American Association of Petroleum Geologists should be the leader in all things that will promote research."

Expansion of the scope of the organization to keep pace with scientific development was tersely explained by Sidney Powers in his report as president at the sixteenth annual meeting in San Antonio, March 19, 20 and 21, 1931:

"The American Association of Petroleum Geologists, organized by a group of about 50 field geologists in Tulsa, February 10, 1917, has grown in 14 years to a membership of 2562 and has changed from a scientific and technical association of local interest to one of international vision and recognition. It is now the largest, and we hope, the finest geological society in the world. . . .

"The increase in broadening of the scope and in membership has been at a regular rate. Several years ago we invited petroleum technologists to become members and this year by a broadening of our constitution, we invited to membership paleontologists, geophysicists, geochemists and all others engaged in research pertaining to petroleum geology or technology."

The technical program of that meeting consisted of 127 titles, 35 of which had been designated for the third volume in the series of books on "Structure of Typical American Oil Fields."

The Society of Petroleum Geophysicists was affiliated with the American Association of Petroleum Geologists at this meeting. A joint meeting with the Geological Society of America was approved and six papers on that program at Tulsa, December 29, 30 and 31, 1931, were by members of the American Association of Petroleum Geologists.

The seventeenth annual meeting, Oklahoma City, March 24, 25 and 26, 1932, gave evidence of how petroleum geology had shifted its activity and its viewpoint to get in step with the national economy that was battering a depression.

L. P. Garrett, president, outlined what the geologist faced:

"As the oil industry has grown

increasingly competitive and increasingly essential to our national commerce, a demand has been made upon our association by the industry not only to increase efficiency in prospecting but also to lower mining costs, and the oil industry has looked to its engineers for better and more efficient equipment, and to the members of our association for facts that would assist in production methods. Within the last two years many of our members have been given the question of how best to lower lifting cost of oil a great deal of study and the more we study it the more we find that the value of a field or property is dependent upon the cost of lifting oil for the life of the property and the work of geologists for the last two years is pointing to the fact that as new pools are discovered the industry may be much more concerned with the 'critical production' that may be obtained from such pool or property than with its potential production for any one day or more. By 'critical production' is meant the maximum amount of oil that can be produced from a pool or property per day under a systematic program that will give rise to the cheapest lifting cost for all oil in the pool during its lifetime. Thus the new standard of estimating the available oil in a new pool for any one period may substitute the term 'critical production' as previously defined for the much misunderstood term 'potential production,' which has been the standard of the industry.

"This work on the study of the best method to lower mining costs is now in its pioneer stage and it is too soon to predict what our final conclusions will be but it should be extremely gratifying to all of us to know that our membership is keenly alive to the problem, that it is really making progress with the problem and that the membership is adjusting itself to what may become one of the most important transitions in the industry. So long as the individual members of this association continue to meet the changing conditions of the industry with the indomitable spirit of work as they have in the past, the success of this association is assured."

The shift to engineering was further emphasized by Frederic H. Lahee, who as third vice president, was in charge of editorial work. He said:

"We are very deficient in papers relating to petroleum engineering. Such subjects as bottom-hole pressures, original fluid conditions in and adjacent to an oil or gas reservoir, porosity and permeability of rock strata and water encroachment are strictly geological. They are of vital importance to the industry. I believe we owe it to ourselves and to our profession to organize for the promotion of more interest and more activity among our members in this branch of our science."

Existence of the East Texas field was evident at this meeting by acceptance of the affiliation of the East Texas Geological Society. At the same meeting the Shreveport Geological Society and the Panhandle Geological Society were admitted to affiliation.

Engineering had its place on the technical program with a group of 8 papers under the heading, "Geological Aspects of Petroleum Engineering." The program of 105 papers included manuscripts for the book, "Geology of Natural Gas," edited by Henry A. Ley and published in 1935.

Although the eighteenth annual meeting, Houston, March 23, 24 and 25, 1933, was sprinkled with items of retrenchment, there were indications an upward turn had begun and it was thus reported in the Bulletin:

It Looks Like the Upturn

"A feeling that the curve was approaching rock bottom pervaded the meeting. Perhaps the facts were were not in hand to prove an upward turn but there was evidence that geologists had already reached a new economic 'low' and were becoming adjusted to synclinal conditions."

Reports of officials showed the first decrease in membership, and net income before depreciation for 1932 was less than in 1931. Dues were reduced and a program of cheaper production cost in printing had been successful. A budget was presented which contemplated a year of association activity on lower income but with adjustments to end the year with net profit.

The name of the committee, previously designated public relations, was changed to Committee on Applications of Geology, and made permanent.

The technical program consisted

A.A.P.G. Presidents

Continued

1936
RALPH DANIEL REED

Born Democracy, Ohio, April 21, 1889. Died January 29, 1940. B.S., Hiram College, 1913; Ph.D., Stanford University, 1924. Positions: instructor Mattoon, Illinois, High School and Orrville, Ohio, High School; instructor, University of Oklahoma; instructor, University of Illinois; geologist, Gypsy Oil Company; geologist, Marland Oil Company; chief geologist, The Texas Company of California, 1930-40.

1937
HERBERT B. FUQUA

Division geologist, Gulf Oil Corporation, Fort Worth. Born, Duncan, Oklahoma, December, 27, 1895. B.A., University of Oklahoma, 1919. Positions: field geologist, Empire Gas & Fuel Company, 1917; United States Army, 1917-18; field geologist, Empire Gas & Fuel Company, 1919-20; field geologist, The Atlantic Refining Company, 1920-22.

1938
DONALD CLINTON BARTON

Born Stow, Massachusetts, June 29, 1889. Died July 8, 1939. A.B., Harvard University, 1911; A.M., Harvard University, 1912; Ph.D., Harvard University, 1914. Positions: instructor in engineering and geology, Washington University, 1914-16; geologist, Empire Gas & Fuel Company, 1916-17; United States Army, 1917-1919; division geologist, Amerada Petroleum Corporation, 1919-23; chief geologist Rycade Oil Corporation, 1923-26, consulting geologist, 1926-27; consulting geologist and geophysicist, 1927-33; consulting geologist and geophysicist, Humble Oil & Refining Company, 1934-39.

1939
HENRY ALFRED LEY

Vice president, Southern Cross Oil Company, San Antonio, Texas. Born, Pittsburgh, October 15, 1894. University of Pittsburgh, 1917. Positions: Southwest Gas Company, Independence, Kansas; Sun Oil Company; foreign service, Standard Oil Company of New York; chief geologist, Skelly Oil Company, 1924; consulting geologist and geologist for Rio Oil Company.

A.A.P.G. Headquarters Staff

Members of the A.A.P.G. staff, the year of their employment and their duties are (from left to right): Daisy Winifred Heath, 1922, editorial assistant; Gayle Robertson, 1930, assistant office secretary; Condray Blair, 1938, bookkeeper; J. P. D. Hull, 1926, business manager; Johnnie Ruth Cassidy, 1934, office secretary of the S.E.P.M., and Maree Cummings, 1929, office secretary.

SINCE written and printed words are the foremost contact between associated headquarters and members, a digest of what goes into the mail in an average day gives an insight into activity of the staff of the American Association of Petroleum Geologists.

The day requires the mailing of 68.4 pieces of first class mail; 30.9 pieces of second class; 7.8 packages by parcel post; once in each 10 days there is a package by express.

This average of an office day is based on records of 1939, when the total of mail and express reached 32,206 letters and parcels. In addition each month involved the mailing of 3200 copies of The Bulletin from Menasha, Wisconsin.

Part of each day goes into preparation of manuscripts for the Bulletin, for each word is read first in manuscript by J. P. D. Hull, business manager, then by Miss Daisy Heath, editorial assistant. Later it is read in proof by them and mailed to the author for his revision. In addition the advertising copy must be assembled by headquarters activity.

Part of each day goes into satisfying the inquiry from the member who wants to know when an article was published and in addition would like to have other available references on the subject.

Each day brings an application for membership, which in turn requires record checking of the applicant as well as the members who have signed the application, and later the information thus collected must be mailed for the consideration of the executive committee.

Then there is that never-ending task of posting the records, which records the standing of a growing membership. No small part of the daily mail goes to members who have paid dues or should pay dues.

Frequently some member comes to a decision of selling a complete set of the Bulletin, which in turn requires the writing of letters to the libraries, organizations and other members, known or thought to be interested.

Along with these details, the routine has its interruptions by personal calls, especially those of young geologists in search of employment.

Let all of this, to which more could be added, give the impression that association headquarters devotes its day to its membership. Furthermore any day may bring the inquiry which seeks to learn if a member is capable of providing the type of geological report a client needs.

Meanwhile the staff must keep track of an expanding inventory of books and publications, carry through the details of preparation for each annual meeting and have its records ready for year-end auditing.

Previous to 1926 headquarters was a roving institution which followed the office of secretary-treasurer. July 15 of that year, J. P. D. Hull became business manager and with a staff of two, moved into three rooms on the third floor of the Tulsa Public Library. In November, 1927, the office was moved to the Tulsa building. Need of more space resulted in a change to five rooms in the Wright building, May 1, 1936. In August, 1937, the secretary-treasurer's office of the Society of Economic Paleontologists and Mineralogists was established in an adjoining room.

of 80 papers, with a symposium on Texas. Separate meetings were held by the affiliated organizations of geophysicists and paleontologists.

Shifting With the Economic Trend

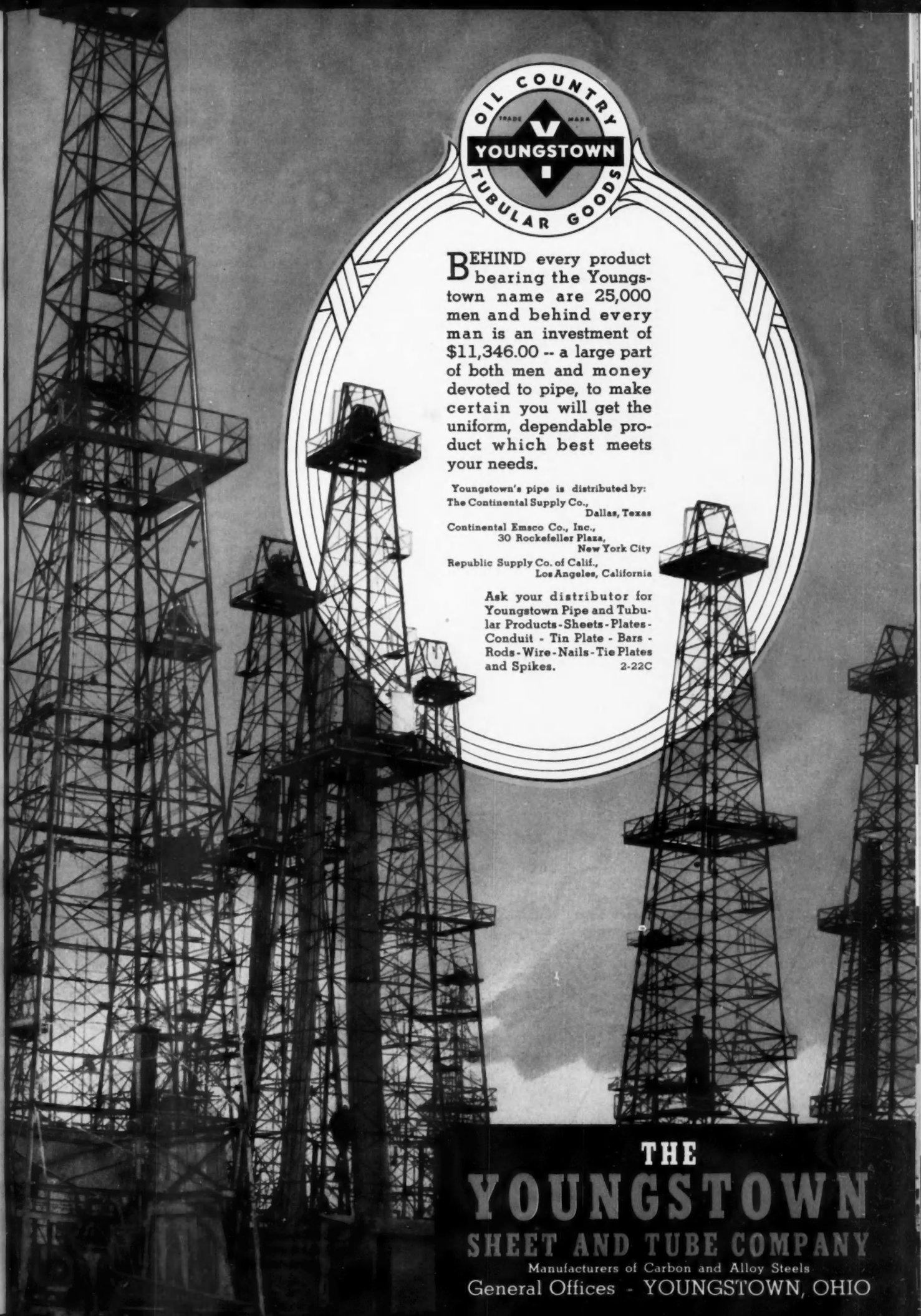
Although the following year brought a further drop in membership, the nineteenth annual meeting, Dallas, March 22, 23 and 24, 1934, brought evidence that the low point in geological and petroleum economics had been passed.

This paragraph from the presidential address of Frank Rinker Clark, reveals the influence of legislation on business and shows the attitude of the profession to a changing economic condition:

"The new challenge to geologists and engineers is much broader than the discovery and production of oil. In the future we must concern ourselves not only with the problem of supplying petroleum products to society, at reasonable prices, but we must exert our influence and training to the end that the supply does not greatly exceed consumptive demand. This problem lends itself admirably to scientific solution. It should not be necessary to invoke legal means to curtail the flush production and to reduce waste of any oil well or any oil pool. A knowledge of the scientific problems involved, plus honesty and cooperation among interested operators is all that is necessary in carrying out a well-balanced plan of development and production designed to give each interested party the recoverable oil that originally was contained in the reservoir beneath his leasehold estate without irreparable damage to the adjoining property. For example, the most efficiently operated and developed oil fields today, under restricted production, in which equality of rights is recognized, are those in which the plan of development and operation is formulated and carried out in the light of scientific knowledge and by voluntary agreement among the operators and by their mutual honesty and cooperation."

The report for the year showed a loss of 293 in members and associates. The association had added an employment service to headquarters activity. Adjustments of the previous year were successful as net income before depreciation and reserves amounted to $4,793.79.

The upturn in association affairs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BEHIND every product bearing the Youngstown name are 25,000 men and behind every man is an investment of $11,346.00 -- a large part of both men and money devoted to pipe, to make certain you will get the uniform, dependable product which best meets your needs.
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A.A.P.G. Past and Present Officers

YEAR	Elected at	President	Vice President[1]	Secretary Treasurer[2]	Editor[3]
1917	Tulsa	J. Elmer Thomas	Alex. Deussen	M. G. Mehl	C. H. Taylor
1918	Oklahoma City	Alex Deussen	I. C. White	W. E. Wrather	C. H. Taylor
1919	Dallas	I. C. White[4]	Irving Perrine	C. E. Decker	C. H. Taylor
1920	Dallas	W. E. Pratt	Alex. W. McCoy	C. E. Decker	R. C. Moore
1921	Tulsa	G. C. Matson[5]	G. C. Gester	C. E. Decker	R. C. Moore
1922	Oklahoma City	W. E. Wrather	Max W. Ball	C. E. Decker	R. C. Moore
1923	Shreveport	Max W Ball	F. W. DeWolf	C. E. Decker	R. C. Moore
1924	Houston	J. H. Gardner	E. G. Gaylord	C. E. Decker	R. C. Moore
1925	Wichita	E. L. De Golyer	R. S. McFarland	C. E. Decker	R. C. Moore
1926	Dallas	Alex W. McCoy	C. R. McCollom	Fritz L. Aurin	J. L. Rich
1927	Tulsa	G. C. Gester	Luther H. White	David Donoghue	J. L. Rich
1928	San Francisco	R. S. McFarland	J. E. Elliott	David Donoghue	J. L. Rich
1929	Fort Worth	J. Y. Snyder[6]	Fred H. Kay	A. R. Denison	F. H. Lahee
1930	New Orleans	Sidney Powers[7]	Ralph D. Reed	Marvin Lee	F. H. Lahee
1931	San Antonio	L. P. Garrett	L. C. Decius	Frank R. Clark	F. H. Lahee
1932	Oklahoma City	F. H. Lahee	R. J. Riggs	W. B. Heroy	R. D. Reed
1933	Houston	Frank R. Clark	George Sawtelle	W. B. Heroy	L. C. Snider
1934	Dallas	W. B. Heroy	E. B. Hopkins	M. G. Cheney	L. C. Snider
1935	Wichita	A. I. Levorsen	F. A. Morgan	E. C. Moncrief	L. C. Snider
1936	Tulsa	Ralph D. Reed[8]	C. E. Dobbin	Chas. H. Row	L. C. Snider
1937	Los Angeles	H. B. Fuqua	C. L. Moody	Ira H. Cram	W. A. VerWiebe
1938	New Orleans	D. C. Barton[9]	H. W. Hoots	Ira H. Cram	W. A. VerWiebe
1939	Oklahoma City	Henry A. Ley	L. M. Neumann	Ed. W. Owen	W. A. VerWiebe

[1] From March, 1929 to March, 1932, the corresponding office was first vice president.
[2] From March, 1929 to March, 1932, the corresponding office was second vice president in charge of finances.
[3] From March, 1929 to March, 1932, the corresponding office was third vice president in charge of editorial work.
[4] Died November 25, 1927.
[5] Died January 3, 1940.
[6] Died January 10, 1939.
[7] Died November 5, 1932.
[8] Died January 29, 1940.
[9] Died August 8, 1939.

was summarized by the president with:

"Conditions within the industry showed definite improvement in mid-summer and business has continued on the upgrade to the present time. These conditions were reflected in the rate at which geologists were returned to employment, which enabled many of our delinquent members to pay dues."

Definition of Estimates and Estimating

The third volume on structure was published under the title, "Problems of Petroleum Geology" and the editor reported that the book by Ralph D. Reed, "Geology of California," was ready for printing.

Reserve of crude oil was the theme of the address of William B. Heroy, president, at the twentieth annual meeting, Wichita, March 21, 22 and 23, 1935. After pointing out that estimates should be accepted as an effort to calculate recoverable oil from known reserves, he said:

"It has not been uncommon for critics to take estimates of recoverable oil, made 10 to 20 years ago, which were clearly stated to include only then known fields, and misrepresent the estimates as having been those of the total oil resources of the country in both known and undiscovered fields. Having thus distorted the facts they point out with satisfaction that subsequent production has far exceeded these early estimates, ignoring the fact that most of the subsequent production has come from fields not known or taken into account when the estimate was made. It should be made very clear that the oil supply of fields discovered more than 10 years ago has been largely exhausted and that the present requirements of the industry for crude oil are being supplied chiefly from more recently discovered fields.

"With the continued testing of the remaining wildcat territory and the increased difficulty of finding new pools the question as to how much oil remains in the ground will become more and more acute. Instead of occasional demands for estimates of petroleum reserves in periods of fear or shortage, the industry, the government and the public will soon expect annually revised statements of our petroleum resources. These will take into account not only producing fields but also prospective areas and will consider all new discoveries and all newly gained experience as to how much oil can be recovered. Close and constant study of the problem will gradually increase the accuracy of the basic data and results will in consequence become more dependable. I have reluctantly come to believe that the work of preparing such estimates and of making them as reliable as possible must be squarely accepted as one of the obligations of our profession."

Reports at this meeting revealed improvement in the welfare of the organization. Its finances were improved by a net profit of more than $5,000, in increase of $4,700 in investments. Although the membership record showed a net loss of 70, reinstatements and more prompt payment of dues were an assurance that the low point had been reached. Finances were such that L. C. Snider, editor, reported that the association was in position

[*Continued on Page 82*]

A.A.P.G. Statistical Sidelights

YEAR	Total Membership	Convention City	Total Registration	Total Editorial Pages in Bulletin	Total Assets
1916	.....	Norman	.....	.....	.....
1917	94	Tulsa	.....	159	.....
1918	176	Oklahoma City	.....	176	.....
1919	348	Dallas	.....	445	$ 83.54
1920	543	Dallas	.....	337	926.98
1921	621	Tulsa	.....	724	3,582.76
1922	767	Oklahoma City	.....	600	7,291.42
1923	901	Shreveport	.....	730	12,453.12
1924	1080	Houston	.....	860	17,938.45
1925	1235	Wichita	825	1319	22,409.56
1926	1504	Dallas	1133	1339	26,609.18
1927	1670	Tulsa	1827	1376	29,810.40
1928	1952	San Francisco	386	1204	32,571.31
1929	2126	Fort Worth	1454	1612	47,341.73
1930	2292	New Orleans	980	1610	61,751.60
1931	2562	San Antonio	1213	1522	74,043.43
1932	2558	Oklahoma City	894	1378	63,782.07
1933	2336	Houston	1021	1568	63,966.84
1934	2043	Dallas	1400	1737	70,374.32
1935	1937	Wichita	1181	1868	85,408.20
1936	2196	Tulsa	1847	1721	92,372.78
1937	2331	Los Angeles	1062	1641	97,483.46
1938	2646	New Orleans	1706	1746	102,096.03
1939	2951	Oklahoma City	1858	1922	107,255.45

t Takes a Truck Engine To Stand the Gaff!

A powerful International Six-Wheeler owned by Loffland Drilling Company of Clay City, Ill. and Tulsa, shown on location near Griffin, Ind.

When ditches need digging no *sissies* need apply. It's a job for he-men, with seasoned heart and muscle and with callouses in the right places. *The same goes for hauling!*

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A.A.P.G. Research Projects

By A. I. LEVORSEN
Chairman Research Committee, American Association of Petroleum Geologists

FOLLOWING is a list of some of the projects of the Research Committee:

1. Sponsorship of a special volume to be published by the aid of the Revolving Publication Fund of the association and to be written by various members of the association under the editorship of Ronald K. DeFord and on the subject of the "Permian System of the United States West of the Mississippi River." Work on this publication is well under way although it may be four or five years before the volume is finally published.

2. Sponsorship of a special volume to be published through the aid of the Revolving Publication Fund on the subject "Stratigraphic Oil Fields in the United States." This volume will contain complete descriptions of the geology, and production of 50 or more oil fields each of which is characterized by having one side of the producing area limited by the edge of porosity in the reservoir rock. Thus sand lense pools, shoestring pools, overlap pools, and similar types will be described. Regional editors are Perry Olcott, South Mid-Continent; N. W. Bass, North Mid-Continent; Theron Wasson, Eastern States; Ross Heaton, Rocky Mountain States; and W. S. W. Kew, California. It is hoped publication will be in 1941.

3. Financial assistance and sponsorship of the cooperative project organized by the Tulsa Geological Society for the purpose of correlating oil analyses with stratigraphy. This research is under the chairmanship of L. Murray Neumann and the membership of the committee consists of three chemists and three geologists. The association has made available for the use of this project the sum of $750.00 which is applied on additional oil analyses being made under the supervision of the United States Bureau of Mines Experiment Station at Bartlesville, Oklahoma.

4. A contribution of $300.00 was made available for the use of Dr. Roger Revelle and Dr. Francis Shepard for the purpose of constructing a bottom-sediment trap for measuring the movement of bottom sediments in the vicinity of the Scripps Institute of Oceanography at La Jolla, California.

5. Assisted in coordinating the geologists of Houston and the Gulf Coast area with the United States Coast and Geodetic Survey to the end that a number of bottom sediments were made available to the petroleum geologists taken from accurately located points in the Gulf of Mexico. These samples are being examined and the results will soon be available through the efforts of a committee of which F. W. Rolshausen is the chairman.

6. Dr. F. M. Van Tuyl and Dr. Ben H. Parker, both of the Colorado School of Mines, have been working for several years on a coordination of our knowledge on the problem of the migration and accumulation of oil and gas. Their preliminary report has been submitted and is being considered by the Research Committee. It comprises approximately 400 pages of typewritten material and is the result of a vast amount of detail work.

7. A committee of geologists appointed by the National Research Council have been working for about five years on a structure map or "tectonic" map of the United States. The preliminary work has been done and the association, upon the recommendation of the research committee, contributed $300 to defray the drafting of the assembly of the various sections of map as prepared by various workers onto one base map. This preliminary map will be available this spring for correction preparatory to the preparation of the final engraved sheets in colors.

8. Several surveys of the geological schools of the United States have been made by the research committee. One such survey showed that the enrollment in geology in the United States—which took in majors and graduate students—increased approximately 40 percent in January, 1939, over January, 1938. A similar survey is being conducted as to enrollment in January, 1940, for comparison.

Another survey was made of the schools from which the members and associates received their geological education. Following is a table showing the 20 highest ranking colleges in the total number of undergraduates and graduates who became members and associates of the American Association of Petroleum Geologists. (Bull. A.A.P.G. Vol. 23, pp. 1117-1123, July 1939.)

1. University of Oklahoma	473
2. University of California	248
3. Stanford University	245
4. University of Chicago	245
5. University of Texas	235
6. University of Wisconsin	135
7. University of Nebraska	129
8. Colorado School of Mines	126
9. University of Kansas	123
10. Columbia University	108
11. Cornell University	88
12. University of Missouri	84
13. University of Colorado	82
14. University of Pittsburg	81
15. University of Iowa	80
16. University of Minnesota	79
17. Missouri School of Mines	77
18. University of Illinois	76
19. Johns Hopkins University	76
20. University of Michigan	76

A survey of research opinion was made in which the membership of the association was canvassed as to those fields of geological research which they believed to be the most important to the progress of petroleum geology. (Bull. A.A.P.G. Vol. 23, pp. 436-453, Mar. 1939.) Following is the relative ranking of the various subjects:

1. Sedimentation, environment of deposition, etc.
2. Migration and accumulation of oil and gas.
3. Reservoir conditions, permeability, porosity, etc.
4. Stratigraphic relations in oil fields.
5. Structural relations in oil fields.
6. Origin of oil and gas.
7. Chemical and physical relations of oil, gas and water.
8. Geophysics.

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Paleontology Increases In Oil Application

By MARCUS A. HANNA
Gulf Oil Corporation

THE examination of samples from wells being drilled for oil began on an intensive scale in the early 1920's. Between 1920 and 1925 many oil companies engaged geologists versed in paleontology for this particular purpose. Previous to this time such work had been carried on sporadically.

Most of the early workers in this new branch of the petroleum industry were, or soon became, members of the American Association of Petroleum Geologists. By 1924 papers of a paleontological nature were appearing on the program at the annual meetings of this association. It was evident that many such papers would be submitted to the association for publication in the Bulletin by its members. Because of this the possibility of a separate publication for papers of a paleontological nature was discussed. This discussion reached a climax at the Dallas, Texas, meeting in 1926.

Due to the reading of papers being behind schedule at the Dallas meeting of the American Association of Petroleum Geologists the paleontological papers were separated into a separate session March 27, 1926. This constituted the first meeting of those engaged in the examination of well samples. At this meeing a general discussion took place pertaining to the organization of the group into a section of the American Association of Petroleum Geologists and the publication of a quarterly journal. Dr. Raymond C. Moore presided. A committee was appointed, consisting of F. B. Plummer, Raymond C. Moore, Mrs. Paul Applin, and F. L. Whitney (with a fifth member to be appointed by these four) to draw up a constitution and by-laws, and report back to the group at the next annual meeting of the American Association of Petroleum Geologists. Officers pro tempore were then elected, consisting of Henry V. Howe, president, Marcus A. Hanna, secretary-treasurer, and J. J. Galloway, editor. During the year Donald D. Hughes was appointed as a fifth member of the committee on constitution and by-laws. F. B. Plummer was authorized by the executive committee of the American Association of Petroleum Geologists to take charge of financing the quarterly journal. Twenty-five individuals and organizations supported the new organization with contributions.

Organization Perfected

Professor J. J. Galloway in cooperation with Dr. Sidney Powers arranged the program for the first annual meeting at Tulsa, March 23 and 25, 1927. The program for March 23 consisted of exhibits of fossils, minerals, description of technique and methods, and round-table discussions. The program of March 25 consisted of organization of the Society of Economic Paleontologists and Mineralogists, and the reading and discussion of papers. Officers were elected which consisted of J. J. Galloway, president, Donald D. Hughes, vice president, Marcus A. Hanna, secretary-treasurer, and Joseph A. Cushman, editor. At this meeting two sections of the Society of Economic Paleontologists and Mineralogists were authorized. They were the Fort Worth Section and the Pacific Section. There were 80 charter members of the society.

Work was started immediately on preparation of the first number of the Journal of Paleontology which was to be the official publication of the Society of Economic Paleontologists and Mineralogists. This involved financing, editorial work, advertising and subscription lists. The first number of Volume 1 appeared in July, 1927, and the completing or fourth number in

S.E.P.M. *Presidents*

ECONOMIC paleontology has become one of the more important applied sciences adapted to oil field prospecting, but those who have qualified for this work are limited in number. Yet the oil industry is fortunate to have attracted a large proportion of those whose names are synonymous with current advancement of the science. Among these will be found past presidents of the Society of Economic Paleontologists and Mineralogists presented below:

1927

JESSE JAMES GALLOWAY

Professor of geology and paleontology, Indiana University, Bloomington. Born, Cromwell, Indiana, August 23, 1882. A.B., Indiana University, 1909; A.M., Indiana University, 1911; Ph.D., Indiana University, 1913. Positions: geology instructor, Indiana University, 1913-16; curator paleontology, Columbia University, 1916-17; instructor, Indiana University, 1917-21; assistant professor, Indiana University, 1921-31; associate professor, Indiana University, 1931.

1928

RAYMOND CECIL MOORE

Professor of geology and paleontology, University of Kansas, Lawrence. Born, Roslyn, Washington, February 20, 1892. A.B., Denison University, 1913; D.Sc., Denison University, 1915; Ph.D., University of Chicago, 1916. Positions: geology instructor, University of Chicago, 1916; assistant professor of geology and paleontology, University of Kansas, 1916-18; associate professor of geology and paleontology, University of Kansas, 1918-19.

(Continued on next page)

January, 1928. The new journal was very favorably received and the 700 copies printed were soon exhausted.

The Journal of Paleontology even with its first number became one of the foremost journals of paleontology in the world. Its high standing is evidenced by its world-wide subscription list. Its development and enlargement through its history is still further evidence of its recognition.

Scope of Publication

Papers were submitted for publication in the Journal of Paleontology at a greater rate than they could be published. It was issued as a quarterly journal through its first 8 volumes, although it was necessary to issue a supplement of 88 pages and 5 plates in Volume 4 in 1930.

The first eight volumes contained the following:

Foraminifera	75 papers
Ostracods	37 papers
Mollusca	20 papers
Technique	15 papers
Diatoms	10 papers
Cephalopods	9 papers
Conodonts	7 papers
Sedimentation	5 papers
Brachiopods	4 papers
General	41 papers

In addition to these were some 20 or more papers on other fossil groups, as well as two papers giving the genera and species of foraminifera erected in 1931 and 1932, reviews, reports and memorials.

The first 8 volumes contained 3325 pages and 344 plates as well as many text figures, charts and maps.

Numerous papers were being submitted by members of the society on the subject of sedimentation. Five general sedimentation papers were published in the first 8 volumes of the Journal of Paleontology. It seemed desirable to separate the sedimentation papers into a separate journal for convenience of publication and ease of access. Consequently, the society decided to expand its publication into two journals, one for papers of a paleontological nature and the other for papers pertaining to sedimentation. These journals were to be the Journal of Paleontology and the Journal of Sedimentary Petrology.

The first number of the Journal of Sedimentary Petrology appeared in May, 1931. The first volume consisted of two numbers containing 100 pages. Included in it were 11 papers pertaining to sedimentation, a foreword, a review and an editorial. Although the first volume contained only 2 numbers, all the succeeding volumes have contained 3. The first 9 volumes, to the end of 1939, contained approxmately 1250 pages of papers on various phases of sedimentation, reviews, etc. The Journal of Sedimentary Petrology has been very favorably received throughout the world.

Early in the 1930's the Society of Economic Paleontologists and Mineralogists were confronted with still another problem. The number of papers being submitted for publication and the variety of subjects covered were beyond the finances of the society and the scope of the Journal as originally authorized. Many of these papers were submitted by non-members of the society. A considerable proportion of them were being submitted by members of the Paleontological Society of America.

The Paleontological Society of America is one of the oldest paleontological societies in America. It has never had a publication of its own. Its papers have been published intermittently in the Bulletin of the Geological Society of America, but this outlet has been more or less limited, particularly in view of the increase in literature on paleontological subjects in recent years. Although many of the members of the Paleontological Society of America are members of the Society of Economic Paleontologists and Mineralogists, many are not.

Publications Combined

The matter of publications was freely discussed by the councils of the Society of Economic Paleontologists and Mineralogists and the Paleontological Society of America. Three possibilities seemed to offer. First, the unsatisfactory condition maintaining might be continued; second, a new publication might be launched by the Paleontological Society of America; or third, the two organizations might join in the publication of the Journal of Paleontology, making it larger, and allowing it to cover more than what might be considered economic paleontology. The third possibility, i.e., a larger journal of greater scope

S.E.P.M. Presidents

(Continued)

1929

MARCUS ALBERT HANNA

Geologist, Gulf Oil Corporation, Houston. Born Neosho County, Kansas, February 24, 1898. A.B., University of Kansas, 1920; Ph.D., University of California, 1926. Positions: teaching fellow, University of California, 1920-22; instructor in geology and paleontology, University of Washington, 1922-24.

1930

JOSEPH AUGUSTINE CUSHMAN

Lecturer, Harvard University; director, Cushman Laboratories, and geologist, United States Geological Survey, Sharon, Massachusetts. Born, Bridgewater, Massachusetts, January 31, 1881. B.S., Harvard University, 1903; Ph.D., Harvard University, 1909; honorary Sc.D., Harvard University 1937. Positions: museum director, Boston Society of Natural History, 1913-23; United States Geological Survey, 1913-22, 26; director, Cushman Laboratory, '23; lecturer, Harvard, '26.

1931

CHARLES ELIJAH DECKER

Professor and head of department of Paleontology, University of Oklahoma, Norman. Born, Dixon, Illinois, September 27, 1868, A.B., Northwestern University, 1906; A.M., University of Chicago, 1908; Ph.D., University of Chicago, 1917; honorary D.Sc., Oklahoma City University, 1935. Positions: geology instructor, Northwestern University, 1908-09; geology and biology instructor, Allegheny College, 1909-10; acting professor, Allegheny College, 1910-12; assistant professor, Allegheny College, 1912-16; geology instructor, University of Oklahoma, 1916-17; assistant professor, University of Oklahoma 1917-19; associate professor, University of Oklahoma, 1919-25; professor, University of Oklahoma, 1925-30.

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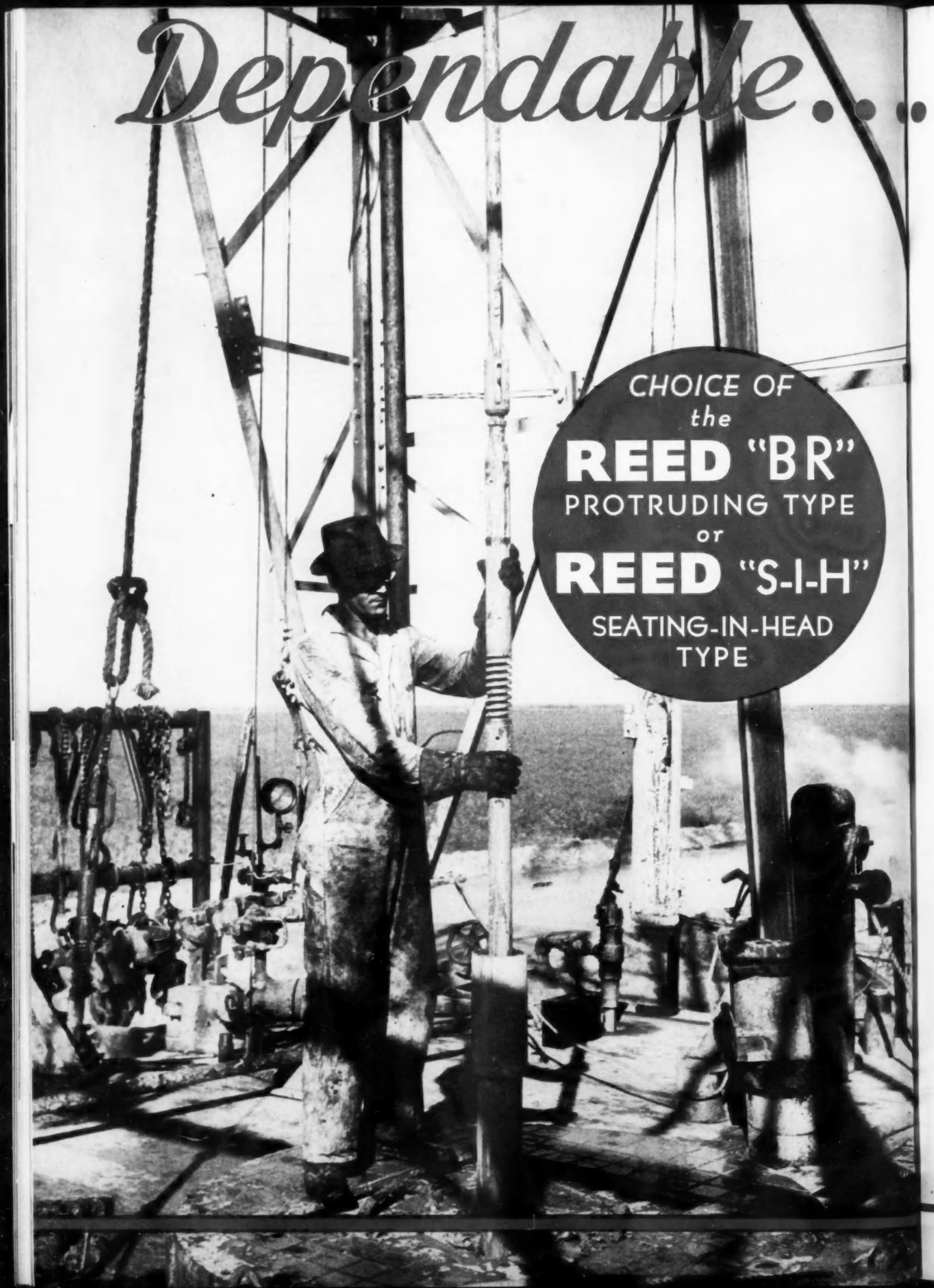
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S.E.P.M. Presidents

(Continued)

1932

G. DALLAS HANNA

Curator paleontologist, California Academy of Sciences, San Francisco, and paleontologist, Pacific and Associated Oil Companies. Born, Carlisle, Arkansas, April 24, 1887. A.B., University of Kansas, 1911; A.M. University of Kansas, 1913; Ph.D., George Washington University, 1918. Positions: assistant, Bureau of Fisheries, 1911-19; curator paleontologist, California Academy of Sciences, 1919; paleontologist, Pacific and Associated Oil Companies, 1923.

1933

FREDERICK BYRON PLUMMER

Geologist, Bureau of Economic Geology and professor of petroleum engineering, University of Texas, Austin. Born, Hanover, New Hampshire, August 31, 1886. B.S., Dartmouth College, 1909; M.S., 1911. Positions: assistant in geology, University of Chicago, 1909-11, instructor, Vassar College, 1911-13; geologist, Roxana Petroleum Company, Okla., 1915-17; chief geologist in charge of exploratory work in Texas and Louisiana, Roxana Petroleum Company, 1917-20; consulting petroleum engineer, Royal Dutch Shell interests, The Hague, 1920-23; petroleum engineer, Rycade Petroleum Corporation, 1923-24; chief geologist of Texas division, Amerada Petroleum Corporation, 1924-27; consulting petroleum engineer in charge of geophysical work, Vacuum Oil Company, 1927-28.

1934

NORMAN LOUIS THOMAS

Paleontologist, The Pure Oil Company, Bakersfield, California. Born, Transfer, Pennsylvania, February 14, 1897. B.S., Denison University, 1920. Positions: geologist, Superior Oil Corporation, 1923-24; paleontologist, The Pure Oil Company, 1926.

1935

WILLIAM HENRY TWENHOFEL

Professor of geology, University of Wisconsin, Madison. Born, Covington, Kentucky, April 16, 1875. A.B., Yale University, 1908; A.M., Yale University, 1910; Ph.D., Yale University, 1912. Positions: professor natural science, East Texas Normal College, 1904-07; assistant professor of geology, University of Kansas, 1910-13; associate professor of geology, University of Kansas, 1913-16; associate professor of geology, University of Wisconsin, 1916-21.

and published jointly was considered the logical solution.

Starting with volume 9 published in 1935 the Journal of Paleontology became the joint publication of the Society of Economic Paleontologists and Mineralogists, a Division of the American Association of Petroleum Geologists, and the Paleontological Society of America, an Affiliate of the Geological Society of America.

For ease in bookkeeping the two societies have been allocated alternate numbers in each volume. Those numbers published by the respective societies are edited by the respective editors. Dues for persons who are members of both societies were worked out satisfactorily so that the joining in publication of the journay has been harmonious, has allowed for a single, large journal of broaded scope.

Volumes 9-13, 1935-39 inclusive, have contained the following:

Foraminifera	51	papers
Ostracods	29	papers
Mollusca	35	papers
Cephalopods	28	papers
Trilobites	26	papers
Mammals	18	papers
Brachiopods	14	papers
Corals	16	papers
Technique	8	papers
Crinoids	8	papers
Conodonts	8	papers
Insects	7	papers
Starfish	6	papers
Reptiles	5	papers
Paleoecology	5	papers
Graptolites	5	papers
Paleobotany	5	papers
Sponges	5	papers
General	34	papers

In addition to these were some 25 or more papers on other fossil groups, as well as genera and species of foraminifera erected in 1933 to 1936, reviews, reports and memorials.

Volumes 9 to 13, inclusive, contained 3498 pages and 416 plates as well as many text figures, charts and maps.

The Society of Economic Paleontologists and Mineralogists has been a very active division of the American Association of Petroleum Geologists since the first separation fo papers at the Dallas meeting in 1926. The Society has grown in membership from 80 charter members in 1927 to 232 active members and 81 associate members in 1939. Many papers are presented and discussed at the annual meetings which are held in conjunction with the annual meeting of the American Association of Petroleum Geologists.

S.E.P.M. Presidents

(Continued)

1936

MERLE CATHCART ISRAELSKY

Paleontologist, Union Producing Company, Houston. Born, San Francisco, California, April 20, 1900. A.B., University of California, 1922. Positions: assistant museum paleontologist, University of California, 1923; assistant curator paleontologist, California Academy of Sciences, 1923-24; paleontologist, Rycade Oil Corporation, Houston, 1924-25; Humble Oil & Refining Company, 1925-26; Standard Oil Company of Louisiana, 1926-27; United Gas System, 1927-37.

1937

STANLEY GEBHART WISSLER

Paleontologist, Union Oil Company of California, Compton, Calif. Born, New York City, March 31, 1900. B.S., Earlham College, 1922; A.M., Columbia University, 1923.

1938

ELIAS HOWARD SELLARDS

Professor of geology and director, Bureau of Economic Geology, University of Texas, Austin. Born, Carter City, Kentucky, May 2, 1875. A.B., University of Kansas, 1899; A.M., University of Kansas, 1900; Ph.D., Yale University, 1903. Positions, assistant paleontologist, Kansas University Geological Survey, 1900-01; field assistant, Carnegie Museum, 1903; instructor in geology and minerology, Rutgers University, 1903-04; professor of geology and zoology, University of Florida, 1904-07; Florida state geologist, 1907-18; geologist, Bureau of Economic Geology, University of Texas, 1918-25; associate director, Bureau of Economic Geology, University of Texas, 1925-32.

1939

GAYLE SCOTT

Paleontologist, Texas Christian University, Fort Worth. Born Lamkin, Texas, October 1, 1894. A.B., Texas Christian University, 1917; A.M., Texas Christian University, 1920; D.Sc., Grenoble, 1925. Positions: instructor in biology and geology, Texas Christian University, 1919-21; assistant professor and associate professor, Texas Christian University, 1921-25; professor, Texas Christian University, 1925-28.

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S.E.G. *Presidents*

GEOPHYSICS may be a comparatively new word in oil, but the names of leading geophysicists long have been prominent in the industry's technology. Among these are those that have organized and lead the flourishing Society of Exploration Geophysicists. A brief biography of all past presidents of the S.E.G. is presented:

1930-31
DONALD CLINTON BARTON

Born Stow, Massachusetts, June 29, 1889. Died Houston, Texas, July 8, 1939. A.B. Harvard University, 1911; A.M. Harvard University, 1912, Ph.D. Harvard University, 1914. Positions: instructor in engineering geology, Washington University, 1914-16; United States Army, 1917-19; geologist, Gulf Coast division, Amerada Petroleum Corporation, 1919-23; chief geologist, Rycade Oil Corporation, 1923-26; consulting geologist, 1926-27; consulting geologist and geophysicist, 1927-34; research and consulting geologist and geophysicist, Humble Oil & Refining Company, 1934-39.

1932
PAUL WEAVER

Geophysicist, Gulf Oil Corporation, Houston. Born Carrolton, Kentucky, May 18, 1888. A.B. Columbia University, 1908; Positions: aide, United States Geological Survey, 1908-09; assistant United States Geological Survey, 1909-10; geologist, Bermudez Company, Venezuela, 1910-11; geologist, S. Pearson & Son and Mexican Eagle Oil Company, 1911-26.

1933
EUGENE McDERMOTT

President, Geophysical Service, Inc., Dallas. Born Brooklyn, New York, February 12, 1899. M.E. Stevens Institute of Technology, 1919; M.A. Columbia University, 1925. Positions: engineer, Goodyear Tire & Rubber Company, 1919-20; electrolysis surveyor, Albert Ganz Company, 1920-21; radio manufacturer, Eugene McDermott Company, 1921-22; engineer, Western Electric Development Company, 1922-23; supervisor, Seismograph and Electrical Survey, Geophysical Research Corporation, 1925-30; vice president, Geophysical Service, Inc., 1930-39.

(Continued on next page)

Exploration

It may be a stick of dynamite, a magnetic needle or a delicate balance, but combined with mathematics,

Ten Years with the Society

IN December, 1922, there was no word "geophysics" in the vocabulary of the oil operator. Geologists had not used it, except as a department of general earth science. There were, however, several men who had explained how it might be possible to find out something about underground structures before they were drilled, and especially where the surface gave meager or no clue to the subsurface. Dr. David White and Dr. J. A. Udden among geologists had discussed the possibilities, and Dr. E. C. DeGolyer was investigating the subject. His activity became known when in December, 1922, there appeared in the Gulf Coast the first torsion balance with the purpose of finding salt domes. Previously, it had been used in Europe to study the outlines of known salt domes.

Developments followed rapidly and by the beginning of 1928 there were specialists operating torsion balances and seismographs in many American oil provinces. During this period of expansion, there was practically no exchange of ideas or methods between different geophysical operators, and the oil public had little information as to what was being done. In February, 1928, at the annual meeting of the American Institute of Mining and Metallurgical Engineers in New York, there was a symposium on geophysical prospecting, and here was the first discussion of the torsion balance and seismograph in this country, as developed for petroleum exploration.

Five papers on geophysics were given before the American Association of Petroleum Geologists' meeting at Fort Worth, Texas, in 1929. Most of the active workers in geophysics were members of neither society, and conversely, most of the geologists and mining engineers were not interested at that time in the mathematical fundamentals of geophysics Thus, it was found that there was little opportunity for publication of a type of paper of interest primarily to geophysicists, and yet requiring dissemination and discussion if the advances in the art of prospecting were to be consolidated.

By 1930, therefore, it was apparent that a new organization would be desirable. In March of that year, the American Association of Petroleum Geologists voted to amend its constitution to admit geophysicists of acknowledged standing, showing recognition that these scientists were making important contributions to geology and especially to petroleum exploration. However, membership in the society was not believed to solve the problem of adequate publication, because of the large program of purely geological papers already taxing the capacity of Bulletins of the A.A.P.G. So at the invitation of Dr. Donald C. Barton, Dr. E. E. Rosaire and John F. Weinzierl, on May 20, 1930, 30 interested persons met at the University Club in Houston and laid plans to form an organization. A constitution was adopted on July 16, 1930, with 39 charter members, and as officers: Dr. Donald C. Barton, president; Dr. E. E. Rosaire, vice president; John F. Weinzierl, secretary-treasurer. Since it was recognized that a primary object of the society was to assist in the interpretation of the geophysical methods of the geologists of the oil companies, the name chosen was "The Society of Petroleum Geophysicists."

The first annual meeting was held at San Antonio in March, 1931, simultaneously with the American Association of Petroleum Geolo-

Geophysics

mechanics and a good sprinkling of experience, you have oil field prospecting reduced to a science

By PAUL WEAVER, Senior Past President, S.E.G.

gists. The important papers presented at this meeting, of special interest to geologists, were published in the November-December, 1931, Bulletins of the A.A.P.G., and reprinted as volumn I of the Transactions of the Society of Petroleum Geophysicists. At this meeting the executive committees of both societies considered means for best promoting mutual assistance and in 1932, the Society of Petroleum Geophysicists became and affiliate of the American Association of Petroleum Geologists and since that time there have been simultaneous annual meetings held by the two societies.

In December, 1931, a joint meeting was held with the American Physical Society and papers primarily of non-geologic interest were published in Physics in March, 1932.

The affiliation with the American Association of Petroleum Geologists was of great benefit to the younger society. Programs of the society have been arranged to include in one session, conflicting as little as possible with sessions of the association, papers of geologic interest. Many members have served as officers of both organizations, and Dr. Donald C. Barton, first president of the society, was president of the association in 1938-39. To the geophysicists, the opportunity to participate in the programs and discussions of the association, especially to the younger men, was of great benefit.

However, the growth of the society's membership and specialization of its papers, soon made the problem of publication again serious, as there were too many papers of interest and importance to our membership only, and ill suited for publication in the Bulletin of the American Association of Petroleum Geologists. Some were published in other scientific or trade journals, but such inconvenient scattering of material was undesirable. To alleviate this condition "Geophysics" was established as a quarterly publication of the S.E.G. with the sub-title: "A Journal of General and Applied Geophysics." The first issue appeared in January, 1936, and is currently running about 30,000 words in technical material quarterly. Al-

S. E. G. Presidents

Continued

1934

E. E. ROSAIRE

Owner and manager, Subterrex, Houston. Born Chicago, Illinois, July 17, 1897. B.S. University of Chicago, 1920; M.S. University of Chicago, 1921; Ph.D. University of Chicago, 1926. Positions: Thermionic tube development, Western Electric Company, 1923-25; field superintendent, Geophysical Research Corporation, 1925-32; president and general manager, Independent Exploration Company, 1932-37.

1935

B. B. WEATHERBY

President, Geophysical Research Corporation, and vice president, Amerada Petroleum Corporation, Tulsa, 1938 —. Born Millville, New Jersey, August 7, 1899. A.B. Haverford College, 1921; A.M. Haverford College, 1922; Ph.D. University of Pennsylvania, 1929. Positions: instructor in physics, Lafayette College, 1921-23; assistant professor, Toledo University, 1923-24; associate professor, Toledo University, 1924-25; field chief, Geophysical Research Corporation, 1925-27; instructor, University of Pennsylvania, 1927-29; division chief, Geophysical Research Corporation, 1929-31; vice president, Geophysical Research Corporation, 1931-33.

1936

LUDWIG WILHELM BLAU

In charge of geophysical and production research, Humble Oil & Refining Company, Houston. Born Graben Baden, Germany, August 9, 1894. B.A. West Texas State Teachers College, 1925; M.A. University of Texas, 1926; Ph.D. University of Texas, 1929. Positions: assistant professor West Texas State Teachers College, 1925; tutor physics, University of Texas, 1925-26; instructor, University of Texas, 1926-29; research geophysicist, Humble Oil & Refining Company, 1929-30; in charge of geophysical research, Humble Oil & Refining Company, 1930-36.

1937

J. C. KARCHER

President, Coronado Corporation, Dallas. B.S. University of Oklahoma, 1916; Ph.D. University of Pennsylvania, 1920. Positions: United States Army, 1917-18; physicist, United States Bureau of Standards, 1920-23; division engineer, Western Electric Company, 1923-25; vice president, Geophysical Research Corporation, 1925-30; president, Geophysical Service, Inc., 1930-39.

1938

F. M. KANNENSTINE

Vice president, Kannenstine Laboratories, Houston. Born St. Louis, Missouri, September 16, 1891. B.S. Washington University, 1913; Ph.D. University of Chicago, 1922. Positions: electrical engineer, General Electric Company, 1913-14; instructor, Missouri Public Schools, 1914-16; assistant in physics, University of Chicago, 1916-22; research instructor, University of Chicago, 1922-25; research laboratory director, Geophysical Research Corporation, 1925-32; vice president, Rosaire & Kannenstine, 1932-37.

1939

E. A. ECKHARDT

Assistant director, Gulf Research & Development Company, and lecturer in geology and geophysics, University of Pittsburgh, Pittsburgh. Born Cedarburg, Wisconsin, August 11, 1888. B.S. University of Pennsylvania, 1908; Ph.D. University of Pennsylvania, 1912. Positions: Harrison research fellow, Gottingen, Germany, 1912-13; instructor and assistant professor of physics, University of Pennsylvania, 1908-17; assistant to senior physicist, United States Bureau of Standards, 1917-25; assistant chief, research department, Marland Oil Company, 1925-28.

though the greatest number of the geophysically equipped parties, even at the present time, are engaged in exploration for oil and gas and therefore in the study of sedimentary rocks, the application of geophysical methods in mining has assumed important proportions. Thus to encompass all fields of exploration, as well as broader aspects of geophysics, the society's name was changed in 1936 to "The Society of Exploration Geophysicists."

In the ten years elapsed since the organization of the society it has had an accelerated growth with a total membership to date of approximately 850. During this time the scope of major geophysical activities has increased through increased utility due to improvements in technique and equipment until it is now a recognized necessity in the petroleum industry. Moreover, specialized branches of geophysics such as well-logging have become commonplace tools in the hands of petroleum engineers and geologists. In such development the society plays an increasingly important role by promoting dissemination of technical information and stimulating discussion without which development is retarded and tends to stagnate.

A.A.P.G. Printed Words

IF the American Association of Petroleum Geologists had contributed nothing more than the 27,594 pages of geological information that appeared in the first 23 volumes of its Bulletin, sufficient would have been accomplished to justify the cost and effort that have gone into all its activities. This publication holds top rank in accomplishing the objective thus described by L. C. Snider, who as Bulletin editor in 1937, said in his report:

"Although a society such as ours has many functions, certainly its fundamental purpose is the accumulation and dissemination of scientific information."

Its growth shows its value. Volume No. 1 (1917) contained 159 pages; volume No. 23 (1939) contained 1922 pages. These figures like the total of all volumes do not include advertising space.

Its rank is evident from its acceptance in libraries whose shelves formerly were restricted to publication devoted to pure science.

Its value to members prompts the spending of $6 per member per year in editing, printing and distributing the publication.

The broadening scope of petroleum geology has been matched by expansion of the Bulletin's subject matter, which includes petroleum engineering, paleontology, geophysics, conservation and economics.

The Bulletin, however, has not been equal to the demand for the dissemination of geologic information, consequently the association has been responsible for the publishing of 20 books. The list and the date of publication are: "Geology of Salt Dome Oil Fields, 1926 (out of print); "Theory of Continental Drive," 1928 (out of print); "Structure of Typical American Oil Fields," volume 1, 1929 (out of print); "Structure of Typical American Oil Fields," volume II, 1929; "Stratigraphy of the Plains of Southern Alberta," 1931; "Geology of California," 1933 (out of print); "Geology of Natural Gas," 1935; "Geology of the Tampico Region, Mexico," 1936; "Gulf Coast Oil Fields," 1936; "Structural Evolution of Southern California," 1936; "The Bulletin, Volume I to Volume XX, 1936; "Comprehensive Index of the First Twenty Volumes of the Bulletin," 1937; "Miocene Stratagraphy of California," 1938; "Recent Marine Sediments," 1939.

The publishing of books came into such popularity that a committee in New York undertook the provision of a revolving fund, established in 1928 and since used to defray cost of printing and later reimbursed by sale of books.

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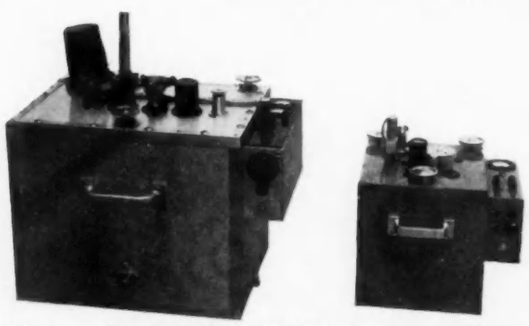

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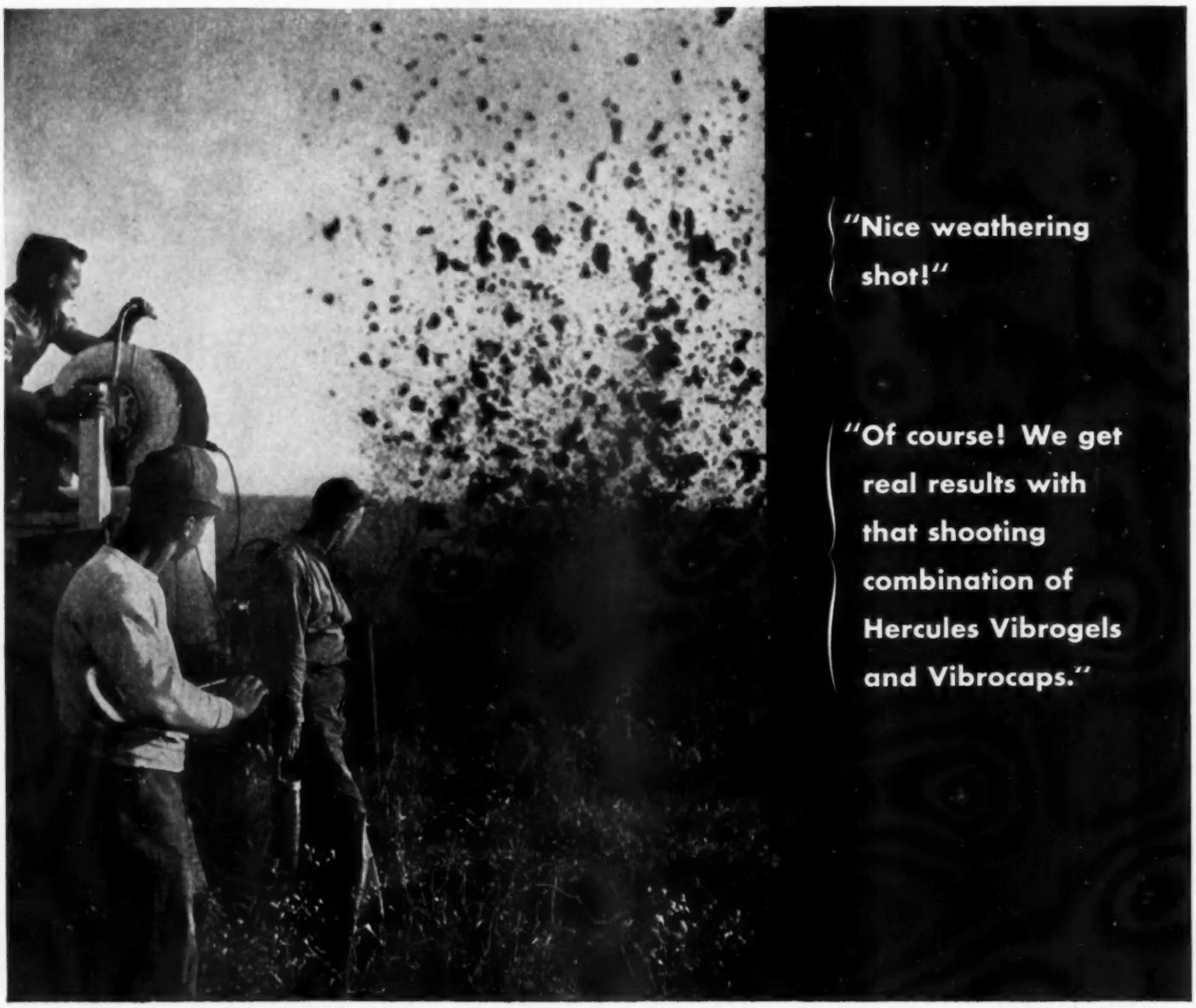
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History and Development of Seismic Prospecting*

By B. B. WEATHERBY
President, Geophysical Research Corporation

As early as 1850 Robert Mallet had already done some experimental work in the field of seismology. He appreciated the vast amount of information regarding the earth's crust that could be gleaned from a study of earthquakes. But, to wait for the occurrence of natural earthquakes, he realized, meant slow and painful progress so he proposed the use of gunpowder for the generation of artificial tremors. His early refraction experiments combined all the elements necessary for success, but, as was to be expected, his apparatus was quite insensitive. However, his work aroused sufficient interest to create a considerable following so that during the next fifty years Abbot, Fouque and Levy, Milne, Gray and Hecker made substantial contributions to the experimental technique while Schmidt, Knott, Weichert, Zoeppritz and Geiger developed the theoretical side of the problem. Most of this work was directed toward the solution of general geological and geophysical problems, particular interest being manifested in the velocity of different formations and in what happened at great depths. By 1910 workers in this field had hinted at the use of refraction profiling for examining the extremely shallow layers of the earth's crust where mineral wealth resides. By this time, too, artificial waves were in common use, the instant of the shot was being determined, the arrival time and the form of the waves was being recorded and average velocities were being calculated from this data. It was appreciated that the waves followed a curved path and that, consequently, they penetrated the earth and returned to the surface. Consequently it was only a short step from pure to applied seismology.

Fessenden, who had been working on sonic depth finding, applied for a patent in 1914 covering the use of both reflections and refractions in the search for minerals. The advent of the great war caused considerable work on both earth and air waves for locating enemy gun positions. After the war, with instruments still further improved and with an excellent demand for petroleum, it is not surprising that efforts were made to adapt the method to the search for structures favorable to the accumulation of oil.

Mintrop in 1919 applied for a German patent covering the use of refraction profiling for the purpose of determining the depth and type of subsurface formations. A German crew, representing the Seismos Gesellschaft, was sent to Mexico in 1923 and to Oklahoma in early 1924 to exploit the new technique. After indifferent results in both places the method was tried on the Gulf Coast where it quickly demonstrated its effectiveness in picking up salt domes. DeGolyer, who had been instrumental in introducing the method into Mexico, followed these developments with great interest. As soon as the Gulf Coast work turned out to be so successful he organized the Geophysical Research Corporation in 1925. J. C. Karcher, who had done some earlier work in seismic prospecting, was chosen head of the new company which immediately set to work on the design of new apparatus. This equipment was first put in the field in 1926. Because of more sensitive apparatus and improved field technique the new company quickly assumed a dominant position in the exploration field. The Seismos and the Geophysical Research Corporation between them were the major consulting companies in a tremendous shooting campaign which resulted in the discovery of some fifty domes between 1924 and 1929. Practically all of the work between these dates was refraction fan shooting. However, during the latter part of the period there was an appreciable amount of refraction profiling in West Texas which served to delineate the larger structural features.

Karcher had applied for a patent in 1919 covering the use of reflections for mapping structure but he abandoned the application when Fessenden was cited against him by the patent office. He carried out field work in 1921 and 1922 and the records he obtained at that time in several parts of Oklahoma very definitely show reflections. Drs. W. P. Haseman, E. A. Eckhardt and Burton McCollum were associated with Karcher during these experiments. As soon as he had the refrac-

* Digest of a paper to be presented to the tenth annual meeting of the Society of Exploration geophysicists, Chicago, April 9-11.

Refraction Days

. . . when shots were big and going was tough

Transportation was a big problem when geophysics were young. Above a semi-motorized outfit takes to the road. (1927-1929).

Below, horses take over and the recording truck resembled a prairie schooner when it was necessary to leave highways.

tion work well under way in 1926 Karcher again directed his attention to reflection work and by the latter part of 1927 Geophysical Research Corporation had crews in the field doing correlation work for Amerada Petroleum Corporation. The program led very shortly to the discovery of a small structure on the Seminole Plateau of Oklahoma which was proved by the drill in 1928. Three nearly simultaneous successes in 1930 under somewhat unusual circumstances paved the way for the subsequent tremendous reflection campaign. Several other companies, among them Humble Oil & Refining Company and Petty Engineering Company, were working on the method during the same period but as far as can be ascertained none of them were engaged in regular exploration prior to 1930. The effectiveness of the reflection method was greatly increased when Geophysical Research Corporation originated the dip method in 1930. This method of exploration could be successfully practiced in areas of younger sediments such as the Gulf Coast of Texas and Louisiana and the San Joaquin Valley of California, where correlateable reflections could not be obtained.

The success of the reflection method was so pronounced that starting with three crews in 1929 the industry was using 250 in 1937, approximately one half of which work was done by consulting companies. In 1929 one consulting company was offering this service while in 1937 there were at least a dozen.

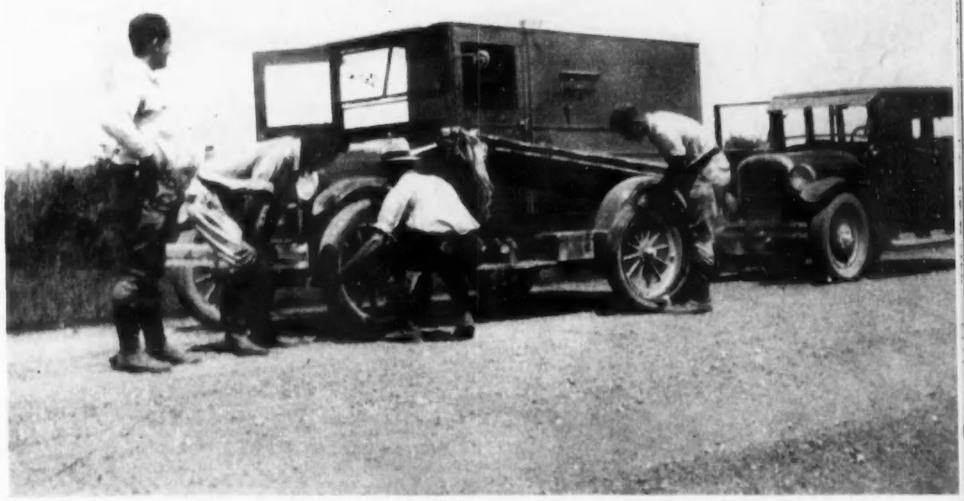
The transition from refraction to reflection work required drastic modifications in apparatus. In the past decade, however, very few changes of a fundamental nature have been made. The one exception to this statement may be the Rieber Sonograph. In this system the earth vibrations are recorded as sound tracks on a film similar to the recording of sound for talking pictures. Such records lend themselves more readily to mechanical analysis than do the conventional types. Great improvement has been made in the stability and sensitivity of apparatus so that now it is always possible to work down to the level of ground unrest. Automatic amplifiers have been introduced whereby much bet-

ter control is exercised over the record amplitude. The trend has been toward the use of a greater number of traces on each record, with one or two of the companies using as many as twenty. The necessity for careful planting of the charge is better recognized and considerable effort is now made to more adequately correct for weathering variations.

A great deal of information regarding the velocity of seismic waves in the near surface materials has been obtained by so-called "well shooting." This procedure consists of lowering a geophone to known depths in a well, firing a charge at the surface, and measuring the travel time of the resulting waves from the surface to the geophone. In many cases this has been done with the aid of cooperative societies. Such data is of great value in working out detailed problems.

Approximately two hundred million acres have been shot and reshot and although the total number of crews now working in the United States is some 20 percent below the 1937 high there is still much work to be done. New provinces are constantly being opened up which can be surveyed by the reflection method. Recent examples are Illinois, Arkansas and Mississippi. At present there are 25 seismograph crews in the last mentioned state whereas a year ago there were only three. Entire credit for the development of the reflection method resides in this country. That American technique is far ahead has been plainly attested by the large number of American crews engaged in foreign service in such countries as Trinidad, Venezuela, Poland, Rumania and Java.

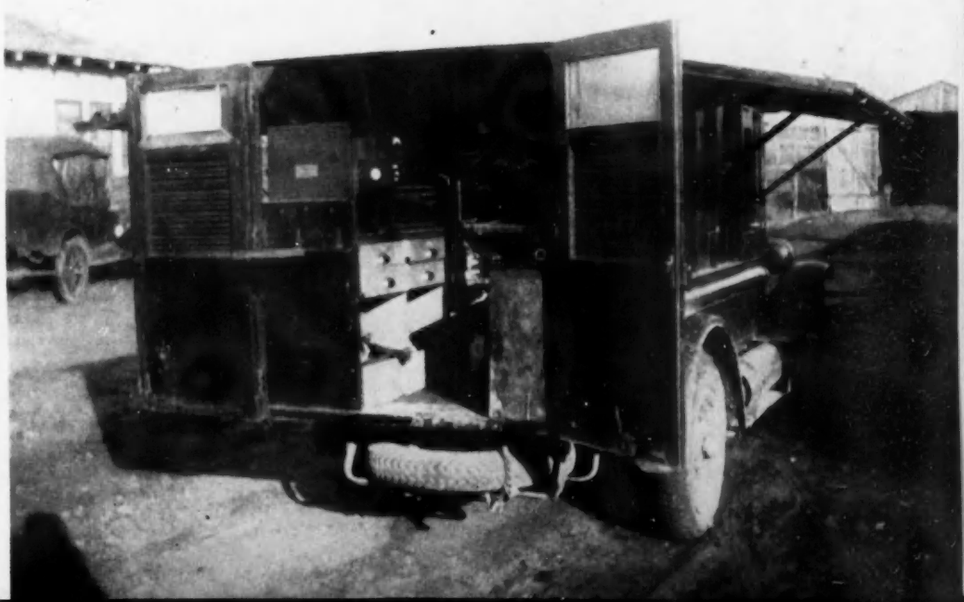
The total cost of seismic exploration in this country has been somewhat less than two hundred million dollars. The program has resulted in the discovery of at least four billion barrels of oil, better than a billion of which has been produced to date, the other three being a part of our proven reserves. In addition there are a great number of undrilled structures, many of which will undoubtedly be productive. If the total cost of the nation's seismic exploration last year was to be charged against the total production it would amount to less than two cents a barrel, a figure which is less than the average gross production tax.



Later, the recording truck grew up to enjoy its own motor and closed body job, as well as its share of tire trouble.

There was progress when the cable reel became mounted on its own truck, but reeling was still a hand-powered task.

Below, the recording truck becomes self-contained and has hinged sides for comfort when not needed for a dark room.



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Gravity Method Produces Results at Low Cost*

By E. A. ECKHARDT
President, Society of Exploration Geophysicists

OUR knowledge of gravity begins with Galileo (1561-1642) who discovered the laws of free fall and of pendular motion (1589). The unit in terms of which geophysicists express their gravity measurements is the "gal," so named after Galileo. To Newton (1642-1727) we owe the law of universal gravitation. It was Huygens (1629-1695) who first used pendulums in clocks. The realization that gravity varied over the surface of the earth came from the variation in clock rates when they were moved about from place to place. Newton and Huygens pointed out that this variation exists because the earth is not a sphere but an ellipsoid of revolution.

All early gravity measurements were made with the pendulum. Their object was to throw light on the shape of the earth. Bouguer (1698-1758) was probably the first to make pendulum observations for this purpose and his name is perpetuated in the Bouguer corrections and Bouguer anomalies with which all technicians who make gravity measurements deal.

The geodesists, or earth measurers, found their gravity observations in mountain areas to be abnormal and thus came into contact with geology. The theory of isostasy which has many variants, was advanced to explain the anomalous gravity results over mountains. This led to discussions as to the mechanism of mountain building, in which both geodesists and geologists participated.

About 1888 Eoetvoes initiated the first radical departure in gravity measurements when he began the development of the torsion balance which bears his name. In 1896 he summarized the results of eight years of work in a paper entitled "Investigations Concerning Gravitation and Earth Magnetism," a paper now regarded as a classic. In developing his balance Eoetvoes had in mind only geodetic measurements. De Boeckh, director of the Geological Survey of Hungary, was in a position to, and did follow the work of Eoetvoes with interest and it was probably he who first realized the possibility of applying the torsion balance to practical prospecting.

First Gravity Survey

Apparently the first gravity survey motivated by practical needs in the oil industry was made by Fekette and Pekar using the Eoet-

* Digest of a paper to be presented to the tenth annual meeting of the Society of Exploration Geophysicists, Chicago, April 9-11, 1940, titled "A Brief History of the Gravity Method of Prospecting."

voes balance over the then one-well oil field of Egbell in Czechoslovakia. The survey consisted of about 100 stations and was made in 1915 and 1916. H. De Boeckh records that he asked Baron Eoetvoes to make these measurements. Other accounts indicate that they were made in behalf of the D'Arcy Exploration Company, an affiliate of Anglo-Persian (now Anglo-Iranian) Oil Company. The apparent conflict may be resolved if one assumes that the D'Arcy Exploration Company dealt with Eoetvoes through De Boeckh.

The Egbell survey was strikingly successful and the publication of its results was prompt. The student of history may be inclined to wonder why the application to petroleum prospecting did not gain immediate momentum. It must be remembered, however, that the Egbell survey was made during the first World War and that the results were published by the technical press of the Central Powers. Under these circumstances, the dissemination of this information through the principal oil producing countries of the world was bound to be slow.

The first gravity survey over a salt dome already partly defined by drilling was made by Schweydar in 1917 over the Hanigsen salt dome near Hanover in North Germany. The survey was made with an Eoetvoes balance. Schweydar deduced from the survey a number of position and shape characteristics of this dome which were subsequently confirmed by drilling.

Other very early torsion balance geologic surveys were reported by Professor R. Schumman of the Technishe Hochschule of Vienna and by Dr. H. Gornick.

The first paper on the gravity method of prospecting to be published in the United States appeared in the October-November, 1923 number of "Economic Geology." Its author was Stephen Rybar and its title "The Eoetvoes Torsion Balance and Its Application to the Finding of Mineral Deposits." The gravity surveys discussed in this paper had all been reported by Eoetvoes about ten years earlier.

Evidently geological applications of gravity measurements followed from the torsion balance rather than from the older pendulum. The reason for this is to be found in the greater convenience of balance measurements and its greater accuracy in measuring gravity differences in relatively local areas as compared to the pendulum equipment and technique of that time.

First in United States

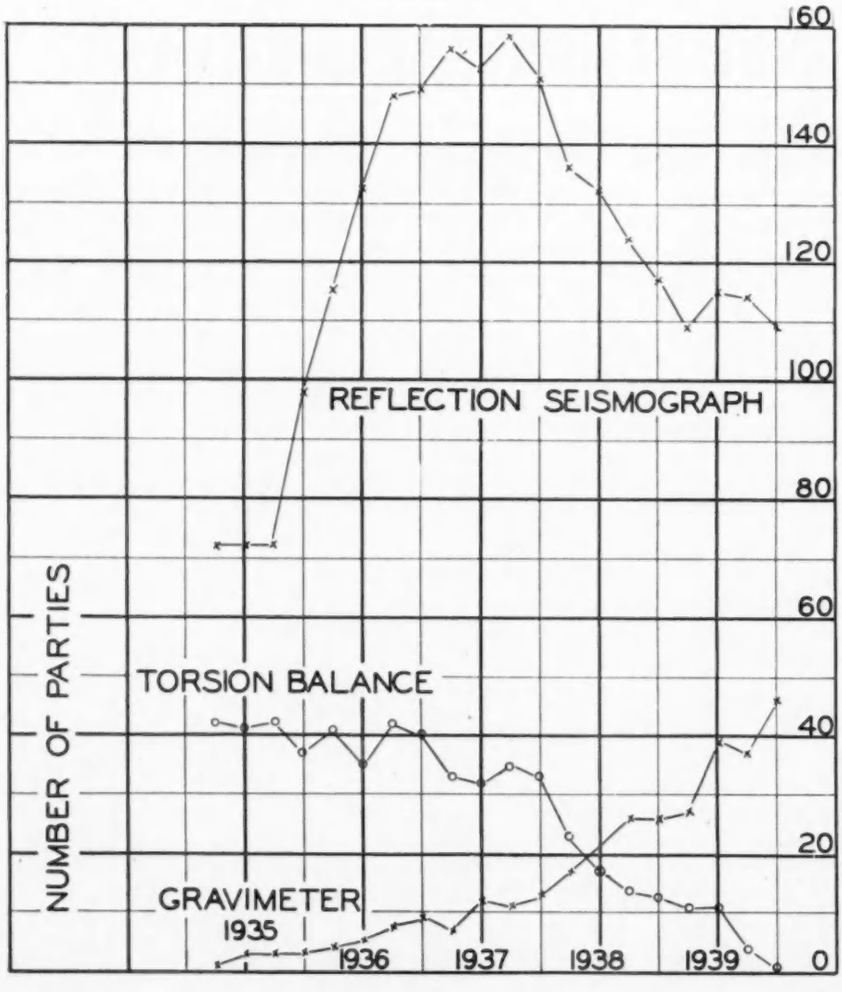
Barton reports that De Golyer made an unsuccessful attempt to secure an Eoetvoes balance in 1914. Two balances were imported to the United States by his organization in September or October, 1922, and two by Roxana Petroleum Corporation (Shell) in November or December of the same year. Both organizations made their initial observations during the last week of 1922.

The first salt dome and oil structure discovered in the United States by any geophysical method was the Nash dome in Brazoria County, Texas. It was discovered by a torsion balance survey made by Rycade Oil Corporation (Amerada subsidiary) early in the spring of 1924.

There immediately followed an intensive campaign of torsion balance surveys which did not begin to taper off until the end of 1936. The amount of torsion balance work being done in this country today is negligible.

In the United States C. E. Dutton, who devised the name isostasy, was first to discuss (1889) the interest of gravity measurements in studying the major tectonic features of the earth. Geodesists Hayford and Bowie discussed the relationship of their gravity data to local geology. Geologist G. K. Gilbert concluded (1913) that the contoured gravity anomaly map of the United States is in some way an expression of substerranean structure. E. W. Shaw, like Gilbert and Dutton, of the United Sttaes Geological Survey in 1917 outlined the basis for his belief that pendulum surveys should be useful in the search for hidden salt domes in Coastal Texas and Louisiana. David White's presidential address to

Fluctuation of Geophysical Activity in States Bordering Gulf of Mexico by Quarters, 1935-1939



the Geological Society of America December 27, 1923, was entitled "Gravity Observations from the Standpoint of Local Geology." Of special interest is that during the interval 1917-1923, numerous station sites suggested by him to the United States Coast & Geodetic Survey were located for the purpose of studying the relation between variation in gravity and the known local geologic structures.

First Commercial Application

Pendulum equipment was first used commercially in prospecting by Marland Oil Company (1925, 1926) in Kansas and north-central Oklahoma, first with equipment purchased from Bausch and Lomb, later with equipment developed for them by Wyckoff and Eckhardt. From March, 1929, to March, 1931, Seismos (Mintrop) using the method of Berroth observed for the account of Gulf Oil Corporation, 392 pendulum stations in Oklahoma and 89 in Texas and Louisiana. From April, through the summer of 1930, Gulf Oil Corporation made an experimental survey of 63 pendulum stations in Michigan with equipment developed for them by G. B. Lamb, R. D. Wyckoff and E. A. Eckhardt. From September, 1930, to March, 1931, this company made a survey of 178 stations in central Oklahoma, and started operations with its first regular pendulum party in Hardin County, Coastal Texas, in August, 1932, and placed a second party into the Coastal Texas area in November of the same year. Up to the time of their retirement in midsummer of 1936, these parties observed approximately 8500 pendulum stations. The Cleveland oil field in Liberty County, Texas, was discovered by these surveys. Tomball was outlined in three operating days.

It is understood that in 1932 Humble Oil & Refining Company purchased pendulum equipment from the Askania Company. It does not appear to have used it other than experimentally in the field.

Gravimeter

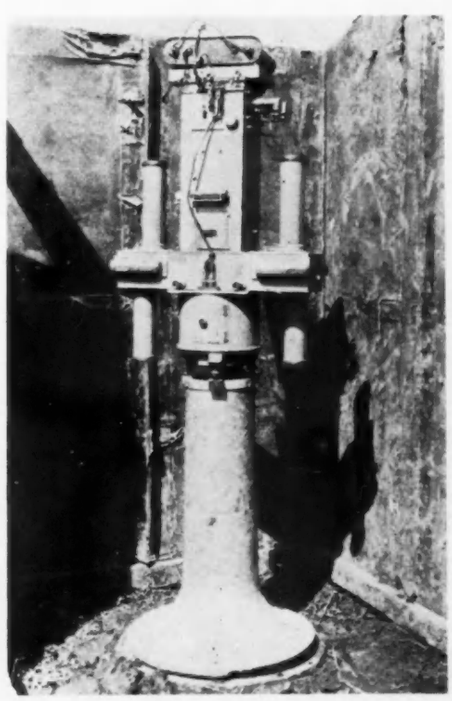
The pendulum and the torsion balance have both been superseded by the gravimeter in prospecting. Considering only instruments of which practical use has been made in prospecting, the instrument of Ising must be regarded as the earliest (1918). It does not seem to have been used in the United States, however.

In the United States gravimeter development appears to have been first undertaken by Humble Oil & Refining Company. This development resulted in the Hartley (1932), Truman and later models. The development of the present Gulf gravimeter was initiated late in 1932 and the first instrument entered regular field service in early March, 1935. Since general information is not available it may be mentioned by way of example that by the end of 1936 eight instruments were in the field, which number was substantially increased in 1937. Up to January 1, 1940, in excess of 200,000 gravity stations have been observed by the use of Gulf gravimeters. The average monthly output per instrument has been over 400 stations, fluctuating widely with variations in the ease of getting around. The record output is 110 stations in a single 8-hour day. The probable error of a single observation has been determined by numerous field observations to be less than 0.05 mg. This precision is probably all that can be practically utilized in all ordinary problems of gravity prospecting.

The Hollweck-Lejay pendulum has been considerably used by Shell Oil Company, as has the Thyssen gravimeter. Humble Oil & Refining Company and The Carter Oil Company have made wide use of the instrument developed by themselves. The Mott-Smith gravimeter has been extensively used by Continental Oil Company and by contract to others and more recently the Brown and Romberg instruments have been adopted and used by a number of operators.

Some statistics as to the fluctuation in geophysical activity may be of interest. The accompanying graph shows this over a period of five years down to date. The area to which these statistics apply was chosen because the best statistics were available for it. It accounts for at least three quarters of the total activity in the United States. To expand these statistics to include all of the United States would have involved a considerable amount of labor which, in view of the unavoidable uncertainty of the result, was not deemed justified. The graph shows clearly the replacement of the torsion balance by the gravimeter. What is not apparent from the graph is that, while the total number of gravity parties of both kinds does not change much, the changeover really represents a substantial expansion of gravity work because a gravimeter party day for day covers very much more ground than a torsion balance party.

Adequate data as to what discoveries are to be credited to gravity prospecting are not available. That they are substantial cannot be doubted. It can now be reported that in the first half of 1937 a gravimeter survey made with two instruments yielded discoveries averaging one per week for a string of well over twenty, at a cost not greatly exceeding a few thousand dollars for geophysical work and lease bonuses for each prospect. This record can probably not be approached by any other prospecting technique.



The first salt dome and oil structure discovered by any geophysical method was discovered by a torsion balance, illustrated above.

Geophysical Applications in the Production of Oil*

By W. T. BORN, Geophysical Research Corporation

SUCH success has attended the use of geophysical methods in the exploration phase of the oil industry that the contributions made by geophysicists to the problems of the production division of the industry are commonly taken for granted or are not recognized as such. The art of electrical logging of formations penetrated by a well is perhaps the outstanding example of a method developed by geophysicists and which has become an almost invaluable aid to the production man. Aside from the aid this method has given geologists in obtaining correlations of strata over large areas, it has developed into a means of recognizing with considerable certainty the nature of formations penetrated by the drill, a means of distinguishing between oil sand and water sands, and to some extent at least, a method of estimating the probable productivity of a well before it has been completed. The recently announced extension of the electrical-logging method which permits electrical logs to be made while a well is being drilled promises a further reduction in the number of cores which might otherwise be taken in drilling wells in wildcat areas.

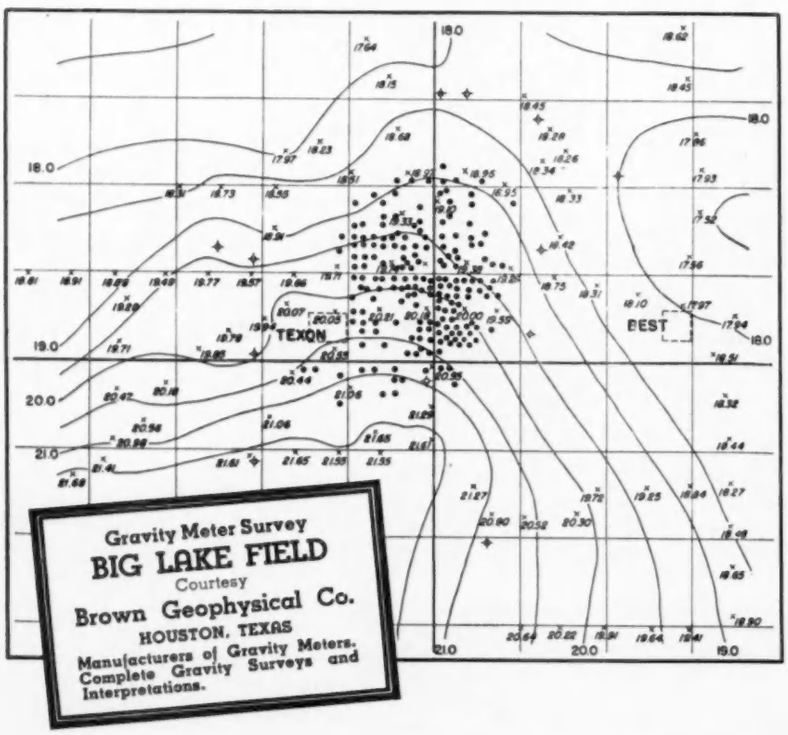
Thermometric surveys of wells offer another example of a geophysical method applied to practical production problems. Observations of the temperature gradient in wells, originally made to obtain geophysical data of scientific interest are now made for such utilitarian purposes as locating leaks in casing, locating gas sands and determining the height of cement in a cased well.

An interesting application of a method introduced to the oil industry by geophysicists, namely, that of determining a distance by observing the travel time of a sound wave, is that of determining the fluid level in a well by sending a sound wave down from the surface, recording its reflection from the fluid-gas contact in the well and observing the elapsed time. Although this method does not yield geophysical data, it uses essentially the technique developed by the geophysicists for making seismic reflection surveys.

Recently it has become common practice to observe the rate at which formations are penetrated by the drill to obtain so-called drilling time—depth logs from which inferences are made regarding the nature of the formations being drilled. Since the speed of drilling is roughly in inverse proportion to the hardness of the formations drilled, this method is essentially a method of obtaining information regarding physical constants of the earth, that is geophysical data.

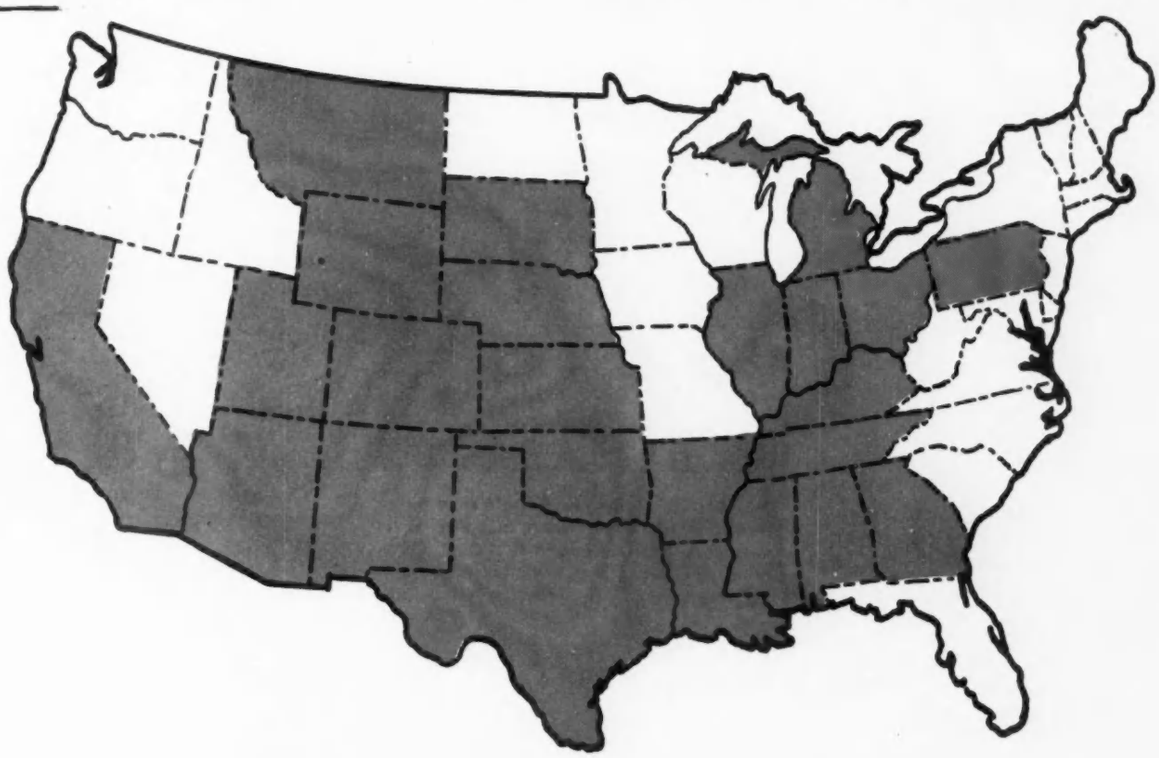
Another method of logging wells already drilled, has recently been reduced to commercial practice, namely, the method of logging formations by observing their relative radioactivity. In addition to being a method which relies on geophysical data, the development of the method is largely the result of the efforts of men trained in geophysics. Although radioactivity logging is still in its infancy, it offers promise of being the long needed method of studying formations hidden behind the casing of wells long completed.

Geophysicists are studying the possibility of measuring various acoustic properties of earth strata penetrated by the drill and of using the information obtained to make still another type of well log. It is yet too early to say whether or not their efforts will be successful, but the work being done illustrates the fact that geophysicists are very much interested in production problems and are constantly seeking opportunities to use their specialized knowledge in the service of the oil industry as a whole.



*Digest of a paper to be presented to the tenth annual meeting of the Society of Exploration Geophysicists, Chicago, April 9-11.

EXPERIENCED IN 24 STATES



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Early Geophysics in the First Person

By D. W. OHERN, Geologist, Oklahoma City, Oklahoma

SO FAR as I know the first conversation concerning the possibility of using the seismograph in determination of subsurface structure was in June, 1919. I had just returned from France after the war. About June 5, W. P. Haseman presented the subject to me. My understanding was that W. P. Haseman, Burton McCollum, J. C. Karcher and E. A. Eckhardt had been working for the Bureau of Standards after the United States had entered into the World War, the particular problem being to locate artillery batteries by means of sound waves. My understanding is that the problem was adequately solved.

Dr. Haseman (now deceased) conceived the idea of applying essentially the same principle to determine subsurface geological structures. Fundamentally, it consisted of a procedure, now known to every geologist and physicist, of setting off an explosion and receiving and recording the reflection of the disturbance on a suitable device some distance from the explosion.

In July, 1921, Dr. Haseman and I had further conversation on the same subject. Nothing definite was done immediately. Dr. Haseman and I proceeded to collect physical and geological data having bearings on the problem. My own work consisted in assembling data pertaining to earthquakes.

In April, 1921, conversation was had with Dr. Irving Perrine, W. C. Kite, Frank Buttram, William R. Raymond, Dean M. Stacy, C. E. Johnson, Dr. H. V. L. Sapper and L. E. Trout. A corporation was formed and called The Geological Engineering Company, charter for which was issued April 8, 1921.

First meeting of the stockholders was held at Oklahoma City, April 25, 1921. D. W. Ohern, Irving Perrine, Frank Buttram, W. P. Haseman and C. E. Johnson were elected directors. At the first meeting of the board of directors, D. W. Ohern was elected president, W. P. Haseman, vice president, Irving Perrine, secretary, and D. W. Ohern, treasurer.

On June 8, 1921, the corporation entered into contract with W. P. Haseman and J. C. Karcher to take charge of and carry out the construction and assembling of proper instruments and equipment for preliminary experiments. As a matter of fact, before time of the contract, both Haseman and Karcher had been active in constructing and assembling seismograph instruments and equipment. In the same month, Haseman and Karcher did the first field work done on this side of the Atlantic so far as I know. The first shots were fired at a point about six miles northwest of Oklahoma City. I was in charge of the geological phases of these preliminary experiments.

August, 1921, the first geophysical party, Reginald G. Ryan, now a consulting geologist in Baton Rouge; Dr. W. P. Haseman, deceased; Dr. J. C. Karcher, now president of Coronado Corp., Dallas.

Those in charge were soon convinced that probably better results would be obtained near Ponca City, Oklahoma, on account of the stratigraphic sequence in that region.

On May 23, 1921, Geological Engineering Company entered into a contract with J. C. Karcher, E. A. Eckhardt, Burton McCollum and W. P. Haseman for their joint services and advice in connection with the experiments.

As was anticipated, problems immediately arose: These consisted chiefly in determining what part of seismograph records might be interpreted as reflections and what would be due to disturbances of another nature. Mechanical difficulties also presented themselves. After consultation with Haseman and Karcher in the field, they and I concluded to go to the Arbuckle Mountains where stratigraphy was well known and where it was believed reflections might be had on the top of the Viola limestone. On August 9, 1921, experiments were being carried on on Vine Creek Dome in the Arbuckles and definite reflections were had on that date. These were plotted and I still have blue prints showing the reflections obtained and I believe these were the first ever obtained this side of the Atlantic.

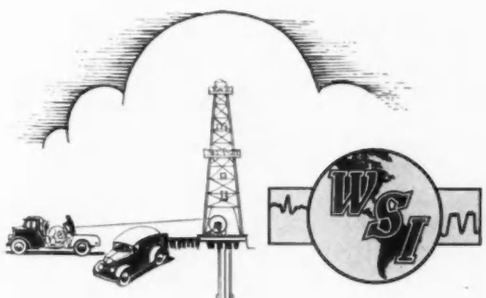
Experiments were carried on in the same region to determine velocities in the Viola limestone and in the Sylvan shale. These were the first accurate determinations of velocities in single formations.

After a few days experimentation, the scene of activity shifted back to Kay County, Oklahoma, near Ponca City. In October, 1921, great difficulty was encountered in interpreting seismograph records. Definite reflections were being obtained but their source could not be easily determined. Within a few days it was concluded these were not coming from definite strata a short distance below the surface. Reginald G. Ryan had joined the field party and was giving excellent assistance to Haseman and Karcher. Perrine and I cooperated actively with Haseman and Karcher in the field but still we could not determine the source of reflections. After several days study in the field and consultation with Haseman and Karcher, I offered the suggestion that the reflections might be coming from the upper surface of ground water. While this was not the solution of the problem, I understand that it lead directly to the real solution which lay in the weathered zone.

In late October, 1921, the company's funds became exhausted and work was discontinued.

All the papers and records of Geological Engineering Company are preserved.

WELL LOGGING BY RADIOACTIVITY



After months of highly satisfactory performance in the field, the W.S.I. Process of Well Logging by Radioactivity will shortly be available to the Oil Industry. Utilizing the radioactivity of formation rocks, the method was developed in the laboratories of Seismograph Service Corporation and Engineering Laboratories, Inc., of which Well Surveys, Inc., is an affiliate.

Since the radioactivity of rocks is entirely unalterable, Well Logging by Radioactivity is able to present a more accurate graph of the entire drill hole. Because radioactivity has another very important advantage, in that it can be detected and measured through iron, accurate logs may be obtained where the well is already cased.

The ability to obtain accurate logs of cased wells is undoubtedly the beginning of a new era in exploration. Through this method new producing formations may be discovered in wells now dormant or present production may be increased.

A comprehensive analysis of Well Logging by Radioactivity will be forwarded on request

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State Officials and Bureaus Concerned with Mineral Resources

Sources of Geological Information

ALABAMA: Walter B. Jones, State Geologist, Geological Survey of Alabama, Tuscaloosa.

ALASKA: B. D. Stewart, Commissioner of Mines, Department of Mines, Juneau.

ARIZONA: G. M. Butler, Director, Arizona Bureau of Mines, Tuscon.

ARKANSAS: George C. Banner, State Geologist, Little Rock.

CALIFORNIA: Walter W. Bradley, State Mineralogist, Department of Natural Resources, Ferry building, San Francisco.

COLORADO: M. F. Coolbaugh, Secretary, Colorado Geological Survey, Denver.

CONNECTICUT: W. E. Britton, Superintendent, Connecticut Geological and Natural History Survey, New Haven.

FLORIDA: Herman Gunter, Assistant Supervisor, Geological Department, Florida State Board of Conservation, Tallahasse.

GEORGIA: Garland Peyton, Director, Department of Natural Resources, Division of Mines, Mining and Geology, Atlanta.

IDAHO: A. W. Fahrenweld, Director, State Bureau of Mines and Geology, University of Idaho, Moscow.

ILLINOIS: M. M. Leighton, Chief Geologist, State Geological Survey, Ceramics Building, Urbana.

INDIANA: R. E. Esarey, State Geologist, State Conservation Department, Indianapolis.

IOWA: A. C. Trowbridge, State Geologist, Iowa Geological Survey, Iowa City.

KANSAS: R. C. Moore, State Geologist and Director, State Geological Survey of Kansas, Lawrence.

KENTUCKY: D. J. Jones, State Geologist, State Department of Mines and Minerals, Lexington.

LOUISIANA: Cyril K. Moresi, State Geologist, Geological Survey, Civil Court House Building, New Orleans.

MAINE: Freeman F. Burr, State Geologist, State Geological Survey, Wayne.

MARYLAND: Edward B. Mathews, State Geologist, State Geological and Economical Survey, Johns Hopkins University, Baltimore.

MICHIGAN: R. A. Smith, State Geologist, Department of Conservation, Geological Survey Division, Lansing.

MINNESOTA: W. H. Emmons, Director, Minnesota Geological Survey, University of Minnesota, Minneapolis.

MISSISSIPPI: William C. Morse, Director and State Geologist, Mississippi Geological Survey, University City.

MISSOURI: H. A. Buehler, Director and State Geologist, Missouri Geological Survey and Water Resources, Geology and Mining Division, Rolla.

MONTANA: Francis A. Thomson, Director, State Bureau of Mines and Geology, Butte.

NEBRASKA: G. E. Condra, State Geologist, Nebraska Geological Survey, Lincoln.

NEVADA: J. A. Fulton, Director, Nevada State Bureau of Mines, Reno.

NEW HAMPSHIRE: James M. Langley, Chairman, State Planning and Development Commission, Concord.

NEW JERSEY: Meredith E. Johnson, State Geologist, Conservation and Development Commission, Trenton.

NEW MEXICO: E. H. Wells, Director, Bureau of Mines and Mineral Resources, Cocorro.

NEW YORK: D. H. Newland, State Geologist, Science Division, State Education Department, Albany.

NORTH CAROLINA: H. J. Bryson, State Geologist, Division of Mineral Resources, North Carolina Department of Conservation and Development, Raleigh.

NORTH DAKOTA: Frank C. Foley, State Geologist, North Dakota Geological Survey, University Station, Grand Forks.

OHIO: Wilber Stout, State Geologist, Geological Survey of Ohio, Ohio State University, Columbus.

OKLAHOMA: Robert H. Dott, Director, Oklahoma Geological Survey, Norman.

OREGON: Earl K. Nixon, Director, State Department of Geology and Mineral Industries, Portland.

PENNSYLVANIA: George H. Ashley, State Geologist, Topographic and Geological Survey, Harrisburg.

RHODE ISLAND: Charles W. Brown, Superintendent, Natural Resources Survey, Providence.

PHILIPPINE ISLANDS: Q. A. Abadilla, Director, Bureau of Mines, Manila.

NORTH CAROLINA: Stephen Taber, State Geologist, South Carolina Geological Survey, University of South Carolina, Columbia.

SOUTH DAKOTA: E. P. Rothrock, State Geologist, South Dakota State Geological and Natural History Survey, Vermillion.

TENNESSEE: Walter F. Pond, State Geologist, Division of Geology, Department of Conservation, Nashville.

TEXAS: E. H. Sellards, Director, Bureau of Economic Geology, University of Texas, Austin.

UTAH: E. H. Burdick, Geologist, State Land Board; Frank H. Gunnell, Geologist, State Tax Commission, Salt Lake City.

VERMONT: E. C. Jacobs, State Geologist, Board of Conservation and Development, Montpelier.

VIRGINIA: Arthur Bevan, State Geologist, Virginia Geological Survey, Charlottesville.

WASHINGTON: Harold E. Culver, Supervisor of Geology, Division of Geology, Department of Conservation and Development, Pullman.

WEST VIRGINIA: Paul H. Price, State Geologist, West Virginia Geological Survey, Morgantown.

WISCONSIN: E. F. Bean, State Geologist, Wisconsin Geological and Natural History Survey, Madison.

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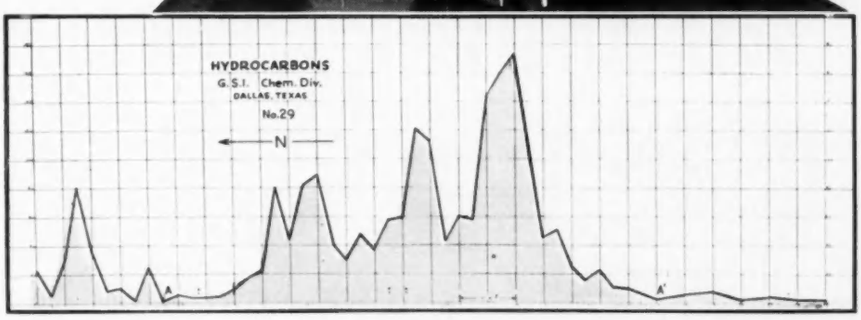

Typical cross section and map of liquid hydrocarbon concentrations

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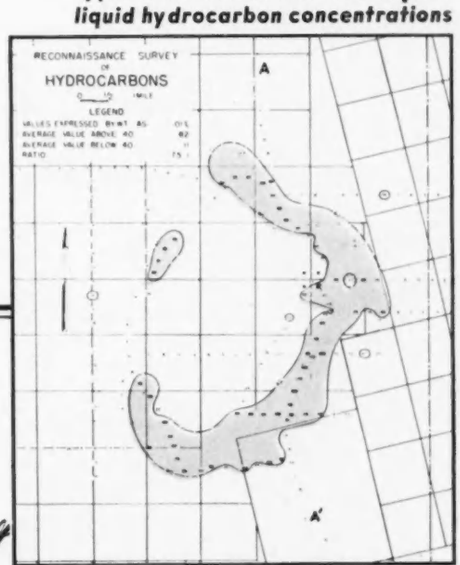

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[*Continued from page 50*]

to publish all worthwhile material in the Bulletin.

The technical program had 25 papers for oral presentation with 18 additional for reading by title. The program on paleontology consisted of 20 papers and there were 13 on geophysical subjects. A symposium on currently active areas was considered as one paper on the oral part of this program.

All Curves Turn Upward

Nineteen Hundred Thirty-five marked the upturn in all activities of the association, as reports at the twenty-first annual meeting, Tulsa, March 19, 20 and 21, 1936, showed. Membership gained 196 and again was above 2000.

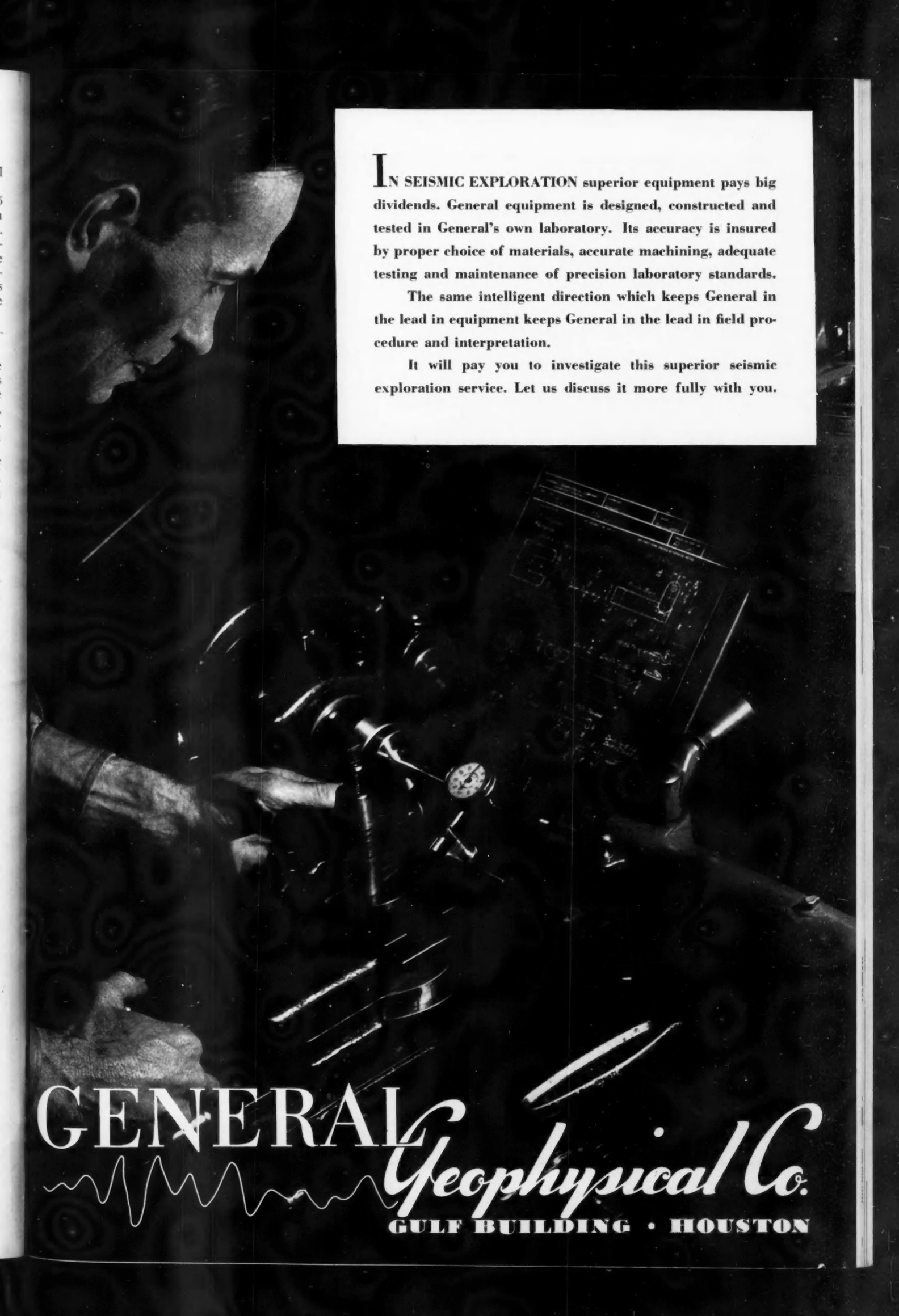
This meeting was a revival of the extensive type of technical program, with 22 papers of general interest for oral presentation, a series of 26 papers in the symposium on active oil fields. There were 10 papers read by title. The program of the Society of Economic Paleontologists and Mineralogists consisted of 22 papers, and that of the Society of Petroleum Geophysicists had 33 papers.

Although not a part of the meeting proper, dedication of the memorial to Dr. David White at Ada, Oklahoma, on the campus of the East Central State Teachers' College, March 22, was an event of interest. This memorial consists of the base of a large tree, belonging to the genus Callixylon, which was found in an exposure of Woodford chert southeast of Ada. It later was inspected and identified by Dr. David White, after which it was erected and dedicated as an after program of the twenty-first annual meeting.

The party which attended this dedication also inspected the Fitts field and made a tour of the Arbuckle Mountains.

Difficulty of getting proper and adequate material for the Bulletin came to the forefront during the twenty-second annual meeting in Los Angeles, March 17, 18 and 19, 1937. Both the retiring president Ralph D. Reed, and the editor, L. C. Snider, made extensive pleas for more manuscript contributions. It was decided to appoint an editorial representative in each geological district to assist in inducing geologists to contribute reports of their findings.

The technical program included papers on geology, oil possibilities, recent developments, geophysics,



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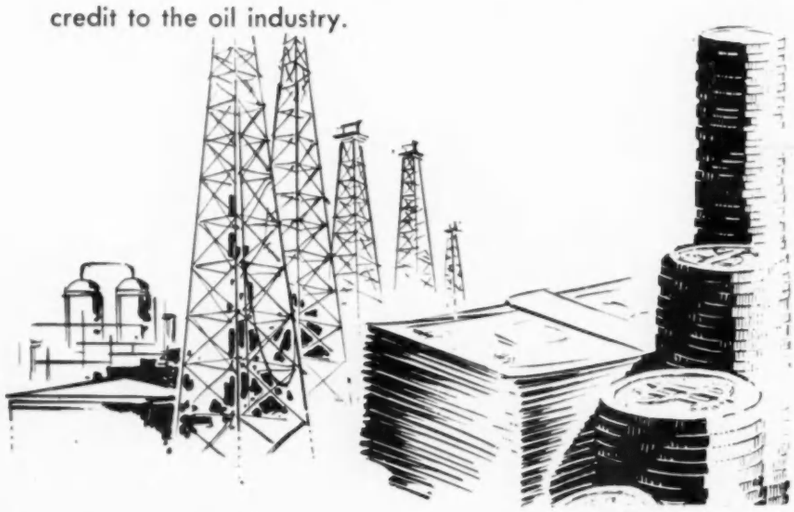

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Goodrich, H. B., consultant, 1628 South Cincinnati, Tulsa, Oklahoma.
Harris, Gilbert D., Cornell University, Ithaca, New York.
Hill, Robert T., Dallas, Texas.
Lawson, Robert C., University of California, Berkeley, California.
Mendenhall, Walter C., United States Geological Survey, Washington, D. C.
Orcutt, W. W., Canoga Park, California.
Ordonez, Ezequiel, Mexico City, Mexico.
Schuchert, Charles, Yale University, New Haven, Connecticutt.
Smith, George Otis, Showhegan, Maine.
Stille, Hans, University of Berlin, Berlin, Germany.
Taff, Joseph A., 628 Cooper Street, Palo Alto, California.
Ulrich, E. O., National Museum, Washington, D. C.
van der Gracht, W. A. J. M., Heerlen, Netherlands.

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Salisbury, R. D.
Udden, John A.
von Hofer, Hans Hofrat
White, David
White, I. C.
Reed, Ralph D.

air mapping, orientation of cores, future of oil exploration, relationship of geology and geophysics with a symposium on the Cretaceous and Tertiary stratigraphy and paleontology of California.

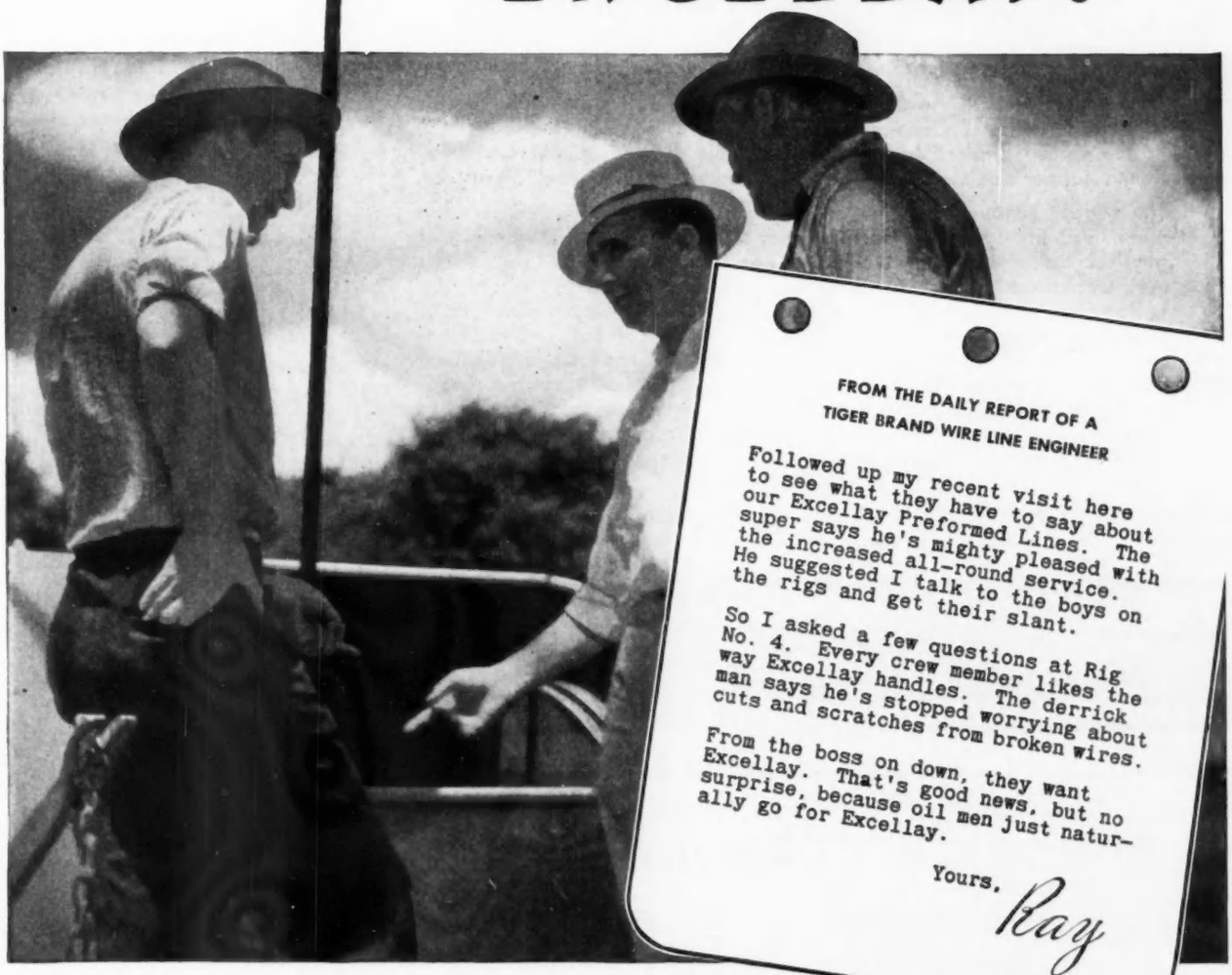
Stratigraphic Search and More Drilling

Total membership stood at 2331, compared with 2169 the year previous. Larger quarters were provided for headquarters activity in Tulsa.

This meeting brought before the association the first report on discoveries of the Illinois Basin, credited to geophysics and geology.

Despite the Illinois discovery this meeting was significant in two warnings concerning future discovery. Wallace E. Pratt under the title, "Discovery Rates in Oil Finding," offered tabulations to show

OIL MEN JUST NATURALLY GO FOR EXCELLAY!



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that discovery in both number of major pools and in barrels had dropped sharply since the heyday period from 1926 through 1930.

A change in technique was recommended and Pratt interpreted the suggestion of A. I. Levorsen of a year previous as demanding:

"A line of research more promising than deeper drilling as a means of improving our finding technique. He [Levorsen] recommended geologic studies at once broader and more intensive than our old 'structure hunting' methods, for the purpose of discovering what he designates 'stratigraphic' pools, that is, pools of the East Texas type, where the reservoir control results from stratigraphic or 'shore line' conditions rather than from simple local deformation of the inclosing strata. Intensive studies in stratigraphy, sedimentary petrography and paleontology, with the continued aid of geophysics, will become the working tools of this new technique. Many such pools are large and, therefore, are worth finding but it should be recognized that in the search for them the exploration must be carried out largely by the actual drilling of wells. Only the general locality can be indicated by the geologist or the geophysicist and within it the drill, through one test hole after another, must carry exploration to completion."

A similar recommendation came from E. DeGolyer in his paper, "Future of Petroleum Exploration," who said:

"I believe that students of the problems of prospecting will agree that we are reaching the point where we shall be prospecting in the United States more and more for the so-called stratigraphic rather than the purely structural accumulations and that these pools will require considerably more drilling for discovery than the structural type of pool. Many of the wells will be drilled essentially for geological information—glorified core drilling. This development of prospecting technique will make it even more imperative to develop a technique of prospecting drilling distinct from and much cheaper than existing types of drilling for production."

Widening influence of geology was apparent in the program for the twenty-third annual meeting in New Orleans, March 16, 17 and 18, 1938.

E. O. Thompson, then chairman of the Texas Railroad Commission,

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SOUTHWESTERN GEOLOGICAL SOCIETY: S. A. Lynch, secretary, department of geology, University of Texas, Austin, Texas.

TULSA GEOLOGICAL SOCIETY: Louis H. Lukert, secretary, The Texas Company, Tulsa, Oklahoma.

WEST TEXAS GEOLOGICAL SOCIETY: Fred F. Kotyza, secretary, Tide Water Associated Oil Company, Midland, Texas.

outlined the role of the profession in recent developments in his paper: "The Function of Geological and Engineering Science in the Conservation Movement."

The contrast of geology of today against geology of 25 years ago came in the address of H. B. Fuqua, president, who recommended cooperation with other divisions of the industry in:

"The proper casing procedure to employ in order to protect potential shallow water supplies for commercial and domestic use.

"The proper casing procedure to insure against gas blowouts with their consequent hazard, expense and physical waste.

"The proper seating of the oil string in order to exclude all upper waters and any free gas which may be present above the oil pay.

"The proper cementing procedure to protect pays when the well is completed in a multiple-sand field.

"The analysis of waters in order to determine their source and suggestions as to their possible elimination.

"The interpretation of Schlumberger curves in the light of geological knowledge.

"The depth to which wells may be drilled in order to penetrate a maximum pay section with minimum danger of encountering water.

"Scientific determination and recommendations about the method of artificial stimulation best adapted to wells where such procedure is necessary.

"Detailed study of old producing wells or fields before abandonment."

The technical program at this meeting brought 110 papers of general interest, 53 of which were delivered orally, leaving 57 to be read by title only. The oral list included 10 papers on current developments.

The program of the Society of Economic Paleontologists and Mineralogists consisted of 17 papers. The Society of Exploration Geophysicists included 25 papers.

This meeting signaled a new peak in membership, 2646. Finances were favorable with a net profit for the year and investments in securities and cash of $58,689.58.

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Income from securities showed an advance over the previous year.

Membership Becomes a Meeting Problem

Growth in membership was treated as a problem by Donald C. Barton, president, in his report at the twenty-fourth annual meeting, Oklahoma City, March 22, 23 and 24, 1939. The 2951 members and associates, an increase of 305 over the previous year, prompted him to warn that the annual meetings no longer could be held in some of the smaller cities of the oil territory and that continued growth would restrict the annual meetings to three or four cities.

Evidence of scientific advancement was noted by the four papers within the field of soil analysis, latest exploration method.

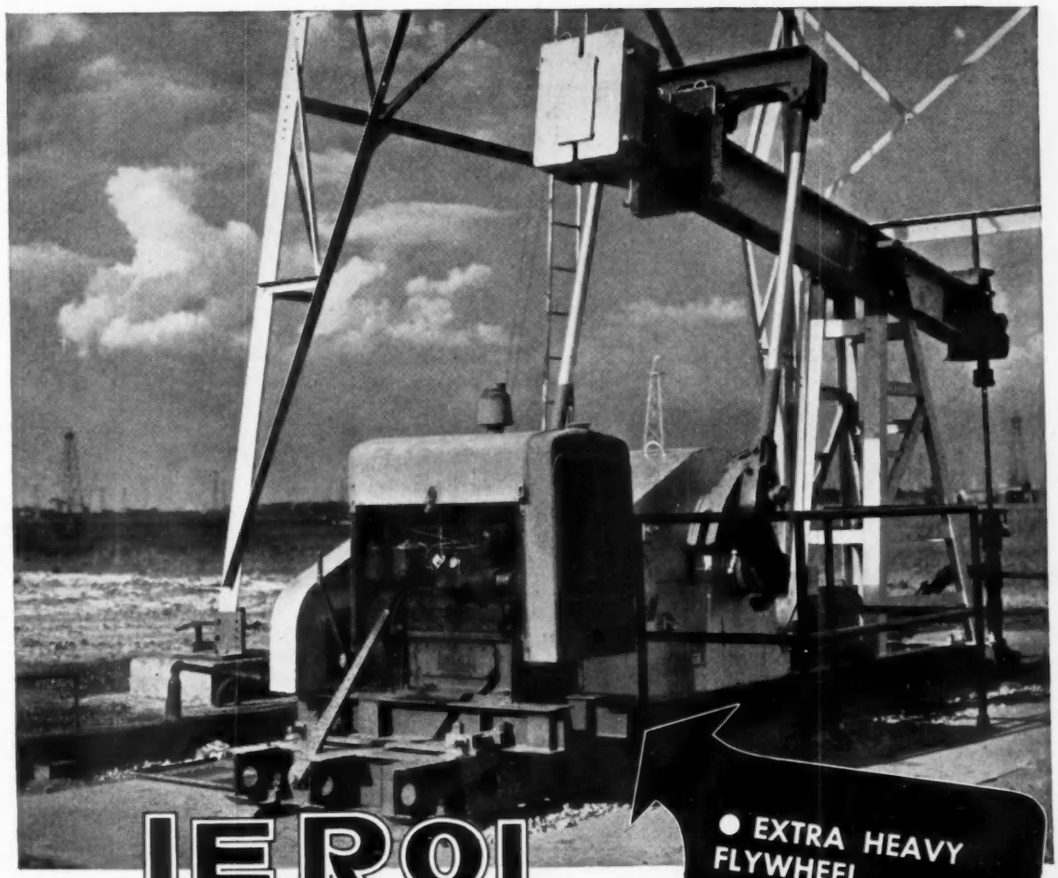
A symposium of 17 papers was ment was noted by the four papers restricted to descriptions of Permian rocks. Within the division devoted to the Pennsylvanian of the Mid-Continent there was a paper on the Forest City basin. Illinois was prominent in discussions, with consideration of possible production below the McClosky lime and a review of the Salem field.

Both economics and proration had a part in the section of the program on economics and recent development. The program contained 70 papers and there were 14 on the program of the paleontology society and 30 by the affiliated society of geophysicists.

Plans for publication of two books made progress during the year, a special volume on recent sediments, which was authorized, while a project which will lead to a volume on the American Permian was recognized.

Affiliation of the Illinois Geological Society was approved. The scope of activity of the research committee was expanded and the plan of inducing members to designate subjects in which they consider research advisable was continued.

Today, the American Association of Petroleum Geologists, and its affiliated groups, is the largest and most influential geological group in the world. Its founders could not have anticipated its growth and present scope, but when one reviews the importance of the geological profession and the way the association has kept abreast of new developments, as shown by its meeting programs, sound reasons for such recognition outcrop everywhere.



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"The Practical Geology of Oil"
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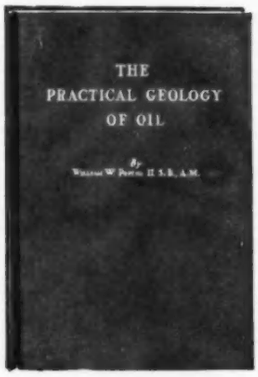

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Wildcat Drilling in 1939

[*Continued from page 33*]

the holes drilled, and 14.75 percent of the footage drilled, was successful. The average depth of hole was 4145 feet.

For comparison with statistics furnished for the southern states in our earlier reports in which figures for the Panhandle of Texas and North-Central Texas were not available, Table 2 is presented.

Selection of the location for a wildcat well may be based on geology (surface geology, subsurface geology, trend along known structural or stratigraphic conditions, local or regional, or shallow exploratory drilling); or it may be based on geophysics (exploration by seismograph, torsion balance, gravity meter, magnetometer, etc.); or it may be based on some non-technical suggestion or requirement, such as "creekology," "hunch," "doodlebug," promotion, lease obligation, reported showings of oil or gas in holes previously drilled, etc. In many cases the reason for choosing the location cannot be ascertained.

In Table 4 are listed the reasons for drilling the wildcats in 1939, using the best information available from men familiar with such statistics, each in his own state or district. According to these figures, 217 wildcats drilled on technical advice (geology and/or geophysics) were successful (oil or gas), and 1446 were dry; 43 holes located for non-technical reasons were producers, and 666 were dry; 10 producers and 207 dry holes were located for reasons unknown. These figures show that 13 percent of the holes drilled on technical advice were producers as contrasted with 6 percent successful in the case of the holes located without technical advice. Therefore, in 1939, as also in 1938[1], locations based on technical recommendations were more than twice as successful as those drilled without such advice. In the southern states (Figure 2), 9.5 percent of the wildcats, located without technical advice, were producers, whereas 14.7 percent of the holes located on technical advice were producers.

As we have pointed out in previous reports of this kind, the relatively low percentage of wildcat successes contrasted with wildcat failures is a measure of the difficulties inherent in geological (including geophysical) interpretation; for geology is not, and never can be, a precise science. We do find, however, that the holes located on technical advice were from 1.5 to 2.2 times as successful as those drilled without such advice.

Wildcat drilling was not as intensively carried on in 1939 as in 1938, nor were there as many new pools discovered.

[1] See Bulletin, Vol. 21, pp. 1079-82; Vol. 22, pp. 645-48; Vol. 22, pp. 1231-35; Vol. 22, p. 1236; and Vol. 23, pp. 789-794.

TABLE 4

Basis for Locating Wildcats Drilled in 1938

STATE	Geology		Geophysics*		Geology and Geophysics		Sundry Non-technical		Unknown		Totals	
	Dry	Prod.	Dry	Prod.	Dry	Prod.	Dry	Prod.	Dry	Prod.	Dry	Prod.
Alabama	....	....	....	....	....	....	5	....	1	....	6	....
*Arkansas	21	1	7	2	5	3	1	....	1	....	35	6
California	51	2	13	2	8	....	17	....	9	....	98	4
Colorado	5	....	1	....	....	....	....	....	....	....	6	....
*Florida	....	....	1	....	....	....	1	....	....	....	2	....
*Georgia	....	....	1	....	....	....	2	....	....	....	3	....
Illinois	59	6	89	17	3	1	232	6	65	....	448	30
Indiana	27	9	7	3	....	....	7	1	42	7	83	20
Kansas	27	11	33	1	....	....	13	6	1	3	74	21
*Louisiana	42	4	63	11	4	....	9	....	7	....	125	15
Michigan	245	12	15	....	....	....	101	1	....	....	361	13
*Mississippi	4	....	6	....	....	2	6	....	....	....	16	2
Missouri	13	....	5	....	....	....	....	....	4	....	22	....
Montana	5	....	....	....	1	....	....	....	....	....	6	....
Nebraska	....	....	2	1	....	....	....	....	4	....	6	1
*New Mexico	11	4	8	2	....	....	....	....	....	....	19	6
Oklahoma	44	16	18	4	....	....	29	1	....	....	91	21
*South Carolina	....	....	....	....	....	....	2	....	....	....	2	....
South Dakota	....	....	....	....	....	....	....	....	2	....	2	....
*Texas	445	70	130	26	19	7	241	28	71	....	906	131
Wyoming	7	....	1	....	....	....	....	....	....	....	8	....
Total	1,006	135	400	69	40	13	666	43	207	10	2,319	270

* Geochemistry is here listed under geophysics.

AMERICAN ASSOCIATION OF PETROLEUM GEOLOGISTS

Program

25th ANNUAL MEETING, CHICAGO, APRIL 10-12

WEDNESDAY AFTERNOON, APRIL 10

Nominations of Officers

1:00 P.M. — 2:00 P.M.

Presiding: Henry A. Ley

Research Committee Symposium

"New Ideas in Petroleum Exploration with Their Significance to Petroleum Geology"

2:00 P.M. — 4:30 P.M.

Presiding: A. I. Levorsen, Monroe G. Cheney

Introduction
By A. I. Levorsen, Chairman Research Committee

Chemical Engineering
By Paul E. Fitzgerald, Dowell, Inc.

Petroleum Engineering
By C. V. Millikan, Amerada Petroleum Corporation

Geophysics
By E. A. Eckhardt, Gulf Research and Development Company

Geochemical Exploration
By E. E. Rosaire, Subterrex

Where Will Our Young Graduates in Petroleum Geology Acquire Field Experience?
By F. H. Lahee, Sun Oil Company

Future Position of Petroleum Geology in the Oil Industry
By E. DeGolyer, DeGolyer, MacNaughton and McGhee

Questions and comments from the floor.

THURSDAY MORNING, APRIL 11

9:00 A.M. — 12:00 NOON

Eastern Interior Basin

Presiding: F. W. DeWolf, M. W. Fuller

Developments in the Eastern Interior Basin
By Alfred H. Bell, Illinois Geological Survey

Review of Structural Discoveries in the Illinois Basin
By C. J. Hares, Ohio Oil Company

A Cross-Section of the Chester Series of the Illinois Basin
By P. L. Dana and E. H. Scobey, Gulf Refining Company

Geology and Development of the Loudon Pool, Fayette County, Illinois
By D. C. Randall, The Carter Oil Company

Subsurface Geology of the Devonian in Illinois
By L. E. Workman, Illinois Geological Survey

Geology of the Nashville Dome
By Chas. W. Wilson, Jr., Vanderbilt University, and Kendall E. Born, State Division of Geology

Tectonic Map of North-Central United States
By C. R. Longwell, Yale University, and Chas. H. Behre, Jr., Northwestern University

Paleozoic Wells in the Mississippi Embayment in Tennessee (By Title)
By Kendall E. Born, State Division of Geology

THURSDAY AFTERNOON, APRIL 11

1:30 P.M. — 4:30 P.M.

Michigan and Appalachian Basins

Presiding: M. G. Gulley, R. B. Newcombe

Developments in Michigan During 1939
By R. B. Newcombe, Consulting Geologist

Temple Field, Freeman-Redding Pools, Clare County, Michigan
By J. B. Maebius, Gulf Refining Company

Geology of the Walker Oil Field
By C. H. Riggs, Department of Conservation

Isopachous Studies of the Ellsworth to Traverse Limestone Section of Southwestern Michigan
By Margaret Stearns Bishop, Consulting Geologist

Buckeye Oil Field, Gladwin County, Michigan
By Carl C. Addison, The Pure Oil Company

Structure in Southeastern Ontario and the Thumb of Michigan as Revealed by Late Quaternary Warping
By Donald B. MacLachlan, Wayne University

Deep Sand Developments in the Appalachian Region During 1939
By Thurman H. Myers, Carnegie Natural Gas Company

Some Problems of Appalachian Structure
By R. E. Sherrill, University of Pittsburgh.

Some Observations Concerning the Sedimentary History of the Central Part of the Appalachian Basin
By Robert C. Lafferty, The Owens, Libbey-Owens Gas Department

Pennsylvanian Sedimentation in a Part of the Southern Appalachian Coal Fields
By Harold R. Wanless, University of Illinois

The Devonian System of West Virginia
By Paul H. Price, State Geologist, and H. P. Woodward, University of Newark

A Study of the Sedimentation and Stratigraphy of the Lower Mississippian in Western Michigan (By Title)
By Lucille Hale, Department of Conservation

THURSDAY AFTERNOON, APRIL 11

2:00 P.M. — 5:00 P.M.

General Papers

Presiding: C. H. Behre, Jr., D. J. Fisher

Water Cones and Water Sheaths in Oil Wells
By F. B. Plummer, Bureau of Economic Geology

Compaction and Flushing of Oil Sands
By F. M. Van Tuyl, Colorado School of Mines, W. A. Waldschmidt and John Baird

Steps in the Formation of an Oil Field
By Max W. Ball, Consulting Geologist

Geological Problems in the Interpretation of the Earth's Major Regional and Local Anomalies
By W. P. Jenny, Consulting Geophysicist

The Sediments of Lakes
By W. H. Twenhofel, University of Wisconsin

Beach Sediments of Trout Lake, Wisconsin
By V. E. McKelvey, University of Wisconsin

The Role of Carbohydrates in the Formation of Oil and Bituminous Coals
By E. Berl, Carnegie Institute of Technology

Geochemical Exploration (Soil Analysis) with Some Speculation as to the Genesis of Oil and Gas Accumulations (By Title)
By Eugene McDermott, Geophysical Service, Inc.

An Hypothesis for the Origin of Certain Geochemical Anomalies Associated with Oil Fields (By Title)
By Ivan J. Fenn, Subterrex

FRIDAY MORNING, APRIL 12

Annual Business Meeting

8:45 A.M. — 9:30 A.M.

Presiding: Henry A. Ley

9:30 A.M. — 12:30 P.M.

Midcontinent and Rocky Mountain Regions

Presiding: Ira H. Cram, C. E. Dobbin

Recent Developments in the North Mid-Continent
By Edward A. Koester, Darby Petroleum Corporation

Recent Developments in the South Mid-Continent
By Lewis W. MacNaughton, DeGolyer, MacNaughton, and McGhee

[*Continued on next page*]

Stratigraphy and Structure of the Northeastern Wichita Mountains, Oklahoma
By Ira H. Cram, The Pure Oil Company

Structure of the Western Part of the Ouachita Mountains
By Thomas A. Hendricks, U. S. Geological Survey

The Structural History of the Billings Field Interpreted in Terms of Isostasy
By Malvin G. Hoffman, Midco Oil Corporation

The Relative Porosity and Permeability of the Producing Formations of the Hugoton Field as Indicated by Gas Withdrawals and Pressure Declines
By Glen G. Bartle, University of Kansas City, and Rufus W. Smith, Panhandle Eastern Pipe Line Company

Developments in the Rocky Mountain Region in 1939
By C. E. Dobbin, U. S. Geological Survey

Permo-Pennsylvanian Stratigraphy Between Colorado Springs, Colorado, and the Black Hills, South Dakota
By W. O. Thompson, University of Colorado, and J. M. Kirby, The California Company

Principles of Oil Accumulation in the Cut Bank District, Montana
By C. E. Erdmann, U. S. Geological Survey

Stratigraphy and Structures of the Wind River Mountains of Wyoming
By E. B. Branson, University of Missouri, and C. C. Branson, Brown University

The Structure of South Park, Colorado
By J. T. Stark, W. E. Powers, A. L. Howland, C. H. Behre, Jr., Northwestern University; D. B. Gould, Colorado College, and J. H. Johnson, Colorado School of Mines

Developments in North and West Central Texas (By Title)
By Karl A. Mygdal, The Pure Oil Company

Additional Information on the Simpson Group of Oklahoma (By Title)
By Charles E. Decker, University of Oklahoma

The San Andres Group in Oklahoma and Adjacent Areas (By Title)
By R. L. Clifton, Champlin Refining Company

The Basal Member of Salado Formation (By Title)
By W. B. Lang, U. S. Geological Survey

Marine Limestone in the Fountain Formation (Pennsylvanian) near Colorado Springs, Colorado (By Title)
By Chalmer J. Roy, Louisiana State University

Geology of the Lampasas Inlier of Paleozoic Rocks in Central Texas (By Title)
By F. B. Plummer and B. F. Grant, Bureau of Economic Geology

FRIDAY AFTERNOON, APRIL 12
2:00 P.M. — 5:00 P.M.
California and Gulf Coast Regions
Presiding: Ed. W. Owen, K. H. Crandall

Significant Developments in California—1939
By E. Robert Atwill, Union Oil Company of California

Twenty Years of Petroleum Geology in California
By Roy M. Barnes, Continental Oil Company

Eocene Exploration in California
By Fred A. Menken, Tide Water Associated Oil Company

Developments and Status of Oil Reserves in South Texas—1939
By L. B. Herring, Geologist

Review of Developments in 1939, Gulf Coast of Upper Texas and Louisiana
By O. L. Brace, Consulting Geologist

Notes on the Fossiliferous Frio
By F. W. Rolshausen, Humble Oil & Refining Company

The Downdip Wilcox (Eocene) of Coastal Texas and Louisiana
By J. A. Culbertson, Continental Oil Company

Geology of the Eola Field, Avoyelles Parish, Louisiana
By Fred W. Bates, Geologist

The La Rosa Field, Refugio County, Texas
By Barney Fisher, Geologist, Coronado Corporation

The Post-Vicksburg Hackberry Zone in the Gulf Coast (By Title)
By M. M. Kornfeld, Consulting Paleontologist

A New Zone in the Cook Mountain Formation, the *Crassatella texalta* Harris—*Turritella cortezi* Bowles Zone (By Title)
By H. B. Stenzel, Bureau of Economic Geology

Society of Economic Paleontologists and Mineralogists

THURSDAY MORNING, APRIL 11
9:00 A.M. — 12:00 NOON
Technical Session
Presiding: Gayle Scott

Recurrent Facies and Faunules of the New York Middle Devonian
By Thomas G. Payne, University of Chicago

A Correlation of the Subsurface Devonian of Sandoval Illinois Pool with the Devonian Outcrop in Southwest Illinois
By W. Farrin Hoover, Consulting Geologist

Invertebrate faunas from the Blaine and the Dog Creek Formations of the Leonard Series
By R. L. Clifton, Champlin Refining Company

Association of West Texas Permian Vertebrates and Plants with Marine Invertebrates
By William F. Read, University of Chicago

Some Silurian Correlations in the Lower Mississippi Drainage Basin
By John R. Ball, Northwestern University

Mid-Carboniferous Strata of Northern Arkansas
By Wm. H. Easton, University of Chicago

Permo-Triassic Boundary in Southeastern Idaho and Western Wyoming
By Norman D. Newell and Bernhard Kummel, University of Wisconsin

Summary of Faunal Studies of the Navarro Group of Texas
By Lloyd William Stephenson, U. S. Geological Survey

Analysis of the Midway Fauna of the Western Gulf Province
By Julia Gardner, U. S. Geological Survey

Comparison of the Ostracode Fauna of the Gosport at Claiborne Bluff, Alabama, with Faunas of Known Jackson and Claiborne Localities
By Grover Murray, Jr., Louisiana State University

Type Moreno Cretaceous and Superjacent Eocene, Panoche Hills, California
By Max B. Payne, Richfield Oil Corporation

THURSDAY AFTERNOON, APRIL 11
1:30 P.M. — 4:30 P.M.
Technical Session
Presiding: Carey Croneis

Cambro-Ordovician Trilobites from Oklahoma
By Edward A. Frederickson, University of Wisconsin

The Genus Constellaria in North America
By M. S. Chappars and Alfred R. Loeblich, Jr., University of Chicago

Pelecypod Fauna of the Permian Satanka Shale
By Harold B. Renfro, University of Wisconsin

Phylogeny of Myalina S. S.
By Norman D. Newell, University of Wisconsin

The Development of the Root Ancyrocrinus
By Heinz A. Loewenstamm, University of Chicago

Micropaleontology and Stratigraphy of a Deep Well at Niceville, Okaloosa County, Florida
By R. Hendee Smith, Louisiana State University

A Belemnite from the Permian of Greenland
By Alfred Fischer, University of Wisconsin

Tertiary Ostracoda of the Genera Alatacythere and Brachycythere
By Grover Murray, Jr., and Keith M. Hussey, Louisiana State University

New Arenaceous Forminifera from the Woodbine Sand of Northern Texas
By Helen Tappan Loeblich, University of Chicago

Economically Important Microfossils
By Hubert G. Schenck, Stanford University

Permian Fussulinids from the Providence Mountains of California
By M. L. Thompson, New Mexico School of Mines, and J. C. Hazzard

Pennsylvanian and Permian Fusulinids of the Wasatch Mountains, Utah
By M. L. Thompson, New Mexico School of Mines, and H. J. Bissell

Fusulinidae from the Crooked River Basin, Oregon
By L. G. Henbest, U. S. Geological Survey, and S. A. Berthiaume

Graptolites from the Haragan Formation (Lower Devonian) of Oklahoma
By Charles E. Decker, University of Oklahoma

FRIDAY MORNING, APRIL 12

9:30 A.M. — 12:00 NOON

Technical Session

Presiding: W. H. Twenhofel

The Sedimentary Characteristics of the Lonsdale Limestone
By E. C. Dapples, Northwestern University

A Simplified Method of Studying the Shapes of Sedimentary Particles
By N. Allen Riley, University of Chicago

Statistical Analysis Applied to Fusulinids
By Benjamin H. Burma, University of Wisconsin

Relative Abundance of Size-Grades of Clastic Sediments
By F. J. Pettijohn, University of Chicago

Field Sampling Errors in Relation to Typical Beaches of Texas, Florida, and California
By George H. Otto, U. S. Soil Conservation Service

Effect of Sieving Time and Sample Weight on the Statistics of Sieve Analyses of Quartz Sand
By George H. Otto, U. S. Soil Conservation Service

Heavy Mineral Zones of Louisiana Gulf Coast Sediments
By W. M. Cogen, Shell Oil Company

11:00 BUSINESS MEETING

Presiding Officer: Dr. Gayle Scott

Papers for 1940 Annual Meeting
Society of Exploration Geophysicists

CHICAGO, APRIL 9-11, 1940

General

A Brief History of the Gravity Method of Prospecting
By E. A. Eckhardt, Gulf Research & Development Company, Pittsburgh, Pennsylvania

The Reliability, on the Basis of Probability Considerations, of Geophysical Anomalies
By Thomas A. Elkins, Gulf Research & Development Company, Pittsburgh, Pennsylvania

Electrical Prospecting Methods
By W. M. Rust, Jr., Humble Oil & Refining Company, Houston, Texas

Fifteen Years of Geophysics: A Chapter in the Exploration of the United States—1924-1939
By James B. Macelwane, Saint Louis University, St. Louis, Missouri

A Perspective of Exploration for Petroleum
By E. E. Rosaire, Subterrex, Houston, Texas

History and Development of Seismic Prospecting
By B. B. Weatherby, Geophysical Research Corporation, Tulsa, Oklahoma

Geophysical Applications in the Production of Oil
By W. T. Born, Geophysical Research Corporation, Tulsa, Oklahoma

Seismic Surveying

On the Form and Nature of Seismic Waves and the Structure of Seismograms
By Norman Ricker, The Carter Oil Company, Tulsa, Oklahoma

Average Vertical Velocities from Refraction and Reflection Profiles
By W. R. Ransone and Fred Romberg, Geophysical Service, Dallas, Texas

Resolution Control in Seismic Exploration
By Roland F. Beers, Geotechnical Corporation, Dallas, Texas

Michigan Weathering
By N. N. Zirbel, Independent Exploration Company, Houston, Texas

Shot Hole Characteristics in Reflection Seismology
By H. J. McCready, L. M. Mott-Smith, Colombia, S. A.

The Effect of Density on Seismic Reflections
By S. S. West, Stanolind Oil & Gas Company, Tulsa, Oklahoma

The Computation and Mapping of Seismic Data
By N. A. Haskell and M. B. Widess, Western Geophysical Company, Los Angeles, California

The Time Delay of a Wave Group in the Weathered Layer
By Alfred Wolf, Geophysical Research Corporation, Tulsa, Oklahoma

A Note on the Attenuation Constant of Earth Materials
By W. T. Born, Geophysical Research Corporation, Tulsa, Oklahoma

The Range of Amplitudes in Seismic Reflection Records
By J. M. Kendall, Geophysical Research Corporation, Tulsa, Oklahoma

Gravity Surveying

Relative Gravity Measurements Using Precision Pendulum Equipment
By Malcolm W. Gay, Gulf Research & Development Company, Pittsburgh, Pennsylvania

The Gulf Underwater Gravimeter
By Theodore B. Pepper, Gulf Research & Development Company, Pittsburgh, Pennsylvania

The Gulf Gravimeter
By Ralph D. Wyckoff, Gulf Research & Development Company, Pittsburgh, Pennsylvania

Geochemical Surveying

Critical Survey of Recent Developments in Geochemical Prospecting
By Sylvain J. Pirson, Pennsylvania State College, State College, Pennsylvania

Some Neglected Aspects of Chemical Exploration
By R. Thomas Sanderson, Western Geophysical Company, Los Angeles, California

Miscellaneous

Network Adjustment by Least Squares—Alternative Formulation and Solution by Iteration
By M. O. Gibson, Shell Oil Company, Houston, Texas

The Mechanics of the Upside Down Core
By E. D. Lynton, Standard Oil Company of California, Whittier, California

Some Properties of Radioactivity Logs
By W. G. Green and R. E. Fearon, Well Surveys, Inc., Tulsa, Oklahoma

A Transformed Wave Front Chart
By Raymond A. Peterson, United Geophysical Company, Los Angeles, California

Modern Seismic Amplifiers
By Herbert Hoover, Jr., United Geophysical Company, Los Angeles, California

The Effect of the Placement of a Seismometer on Its Response Characteristics
By Harold Washburn and Harold Wiley, United Geophysical Company, Los Angeles, California

Combination of Wave Transients
By Thomas Wiancke and Martin Eichelberger, United Geophysical Company, Los Angeles, California

Transient Testing of Seismic Recording Apparatus
By Harold Washburn and Raymond C. Olson, United Geophysical Company, Los Angeles, California

Exploratory Equipment at Chicago Convention

EXHIBITS at the annual meeting of the A.A.P.G. in Chicago, April 9-12, will represent the latest in devices and methods for locating structure in oil-finding. Some of the industry's foremost technical equipment manufacturers and oil-field service companies will make the Boulevard Room of the Stevens Hotel look like an up-to-date laboratory on the science of oil exploration. A select group of exhibitors will represent the several scientific methods which oil companies use in their constant efforts to maintain an adequate reserve of oil and gas for future needs. These displays will include methods and results of making maps of geological formations—from the air, on the earth's surface, and by earth vibrations thousands of feet below the surface. The laws of the exact and natural sciences have been so skilfully applied to the development of geological-structure mapping that present-day methods and results were undreamed of 25 years ago. The exhibits at this twenty-fifth annual meeting are concrete examples to illustrate the A.A.P.G. Research Committee's timely symposium on the first day of the technical program, "New Ideas in Petroleum Exploration with Their Significance to Petroleum Geology," a round table discussion led by seven men prominent in their respective fields of stratigraphic geology, chemical engineering, petroleum engineering, geophysics, chemical exploration, college graduate training, and the future position of geology in the industry. The exhibits will be open on April 9 and remain on display through the three days of the technical program, April 10, 11 and 12.

The exhibitors include:

American Askania Corporation, Houston, Texas.

Atlas Powder Company, Wilmington, Delaware.

E. I. du Pont de Nemours & Company, Wilmington, Delaware.

Eastman Kodak Company, Rochester, New York.

Geo. E. Failing Supply Company, Enid, Oklahoma.

Geophysical Service, Inc., Dallas, Texas.

Gravimetric Survey, Tulsa, Oklahoma.

Halliburton Oil Well Cementing Company, Duncan, Oklahoma.

Hercules Powder Company, Wilmington, Delaware.

Hughes Tool Company, Gordon Richmond, Houston, Texas.

Illinois Powder Manufacturing Company, St. Louis, Missouri.

Kelly Map Company, Tulsa, Oklahoma.

Laughlin-Simmons & Company, Tulsa, Oklahoma.

Reed Roller Bit Company, Houston, Texas.

Seismograph Service Corporation, Tulsa, Oklahoma.

Southern Plastic Company, Houston, Texas.

Spencer Lens Company, Buffalo, New York.

Edgar Tobin Aerial Surveys, Houston, Texas.

Well Surveys, Inc., Tulsa, Oklahoma.

Holmberg Aerial Survey Company, Chicago, Illinois.

Geochemical Service Corporation, Tulsa, Oklahoma.

GRAVITY SURVEYS

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GRAVITY METER EXPLORATION CO.

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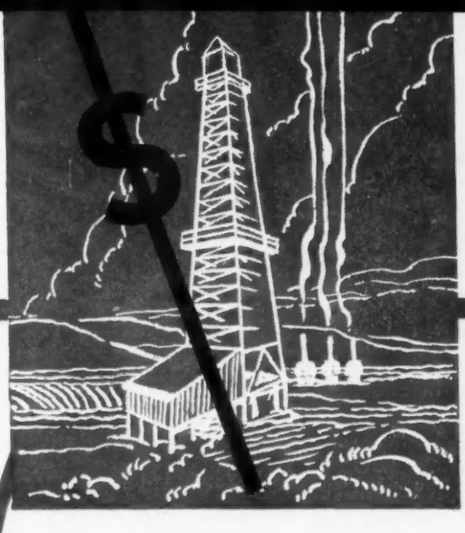
W. G. SAVILLE *A. C. PAGAN* *J. P. SCHUMACHER*

830-2 SHELL BLDG., HOUSTON, TEXAS

Fifteen years experience in making and interpreting gravity surveys in the United States and foreign countries.



Confidence

The investment in a drilling project is so great that successful oil companies are particularly careful to select geophysical companies of proven reputation for ability and integrity.

Leading oil companies have confidence in the McCollum Exploration Company because of its long experience and exceptional record of efficient and dependable mapping of oil bearing structures.

When McCollum Service is used, drilling operations are planned with greater confidence . . . a service that through the years has well earned the reputation for being

Eminently Successful

McCOLLUM SINCE 1924
Exploration Company

611 Esperson Building Houston, Texas

Oil-Field Development Is a Geological Enterprise

[*Continued from page 23*]

an undeniably geologic setting. Today no engineer determines an optimum rate of production, no drilling crew sets an oil string, no conservation officer promulgates a spacing order for a new field, but he draws importantly, albeit unconsciously, perhaps, on the collective geologic experience of the industry in the performance of his task.

All this is as it should be, and there is in the development no occasion for surprise to any competent student of the oil industry. In its true character the exploitation of natural reservoirs of petroleum in the earth's crust constitutes a purely geologic enterprise. When it is comprehended and undertaken as such rather than as a game of chance or an adventure in clairvoyance, coupled only with the mechanical problem of sinking wells and lifting fluids, as the pioneer producers conceived it to be, it is only natural that greater success should attend the effort.

There is exemplified in the modern technique of the oil-producing industry as herein described a way of doing things, that is peculiarly American. Only in a society where the gentleman, the educated professional specialist, labors freely with his hands, unembarrassed, at menial tasks, can a cooperative effort of this character attain full success. It is no mere coincidence that most of the oil fields of the world have been found by Americans. Search for oil fields succeeds best through the method of intimate and all-inclusive cooperation in which American workers excel. The contrary method is illustrated by recent experience in oil finding in some of the totalitarian countries. In Russia (that land of the classless society) geologists comprise one category, drilling experts another, production engineers another, etc., etc. Each group is insulated rigidly from the others; each reports to and is directed by a different authority. The geologist in his work is denied the great advantage of that identity of viewpoint with the driller and the producer on their problems, which first-hand personal experience would give him. The driller and producer alike, in turn, suffer from a similar lack of any geologic understanding. In this hierarchy ultimate control is despotic, centralized and remote from the scene of the actual struggle. Some of the most brilliant individual petroleum geologists in the world are Russians. Within the confines of Russia lies much of the most promising petroleum province in the world. Over the last twenty years Russia has devoted intense effort to finding and producing more oil. Yet today Russia starves for oil while America sells oil to the world. America produces currently about six barrels of oil for every barrel Russia can produce. America's past production far exceeds that of Russia and her proved reserves bulk more than twice those of Russia.

Even a brief review of the record of finding and producing the world's oil, viewing the matter in the light of American experience, arouses some unconventional suspicions. In England, that tight little isle, where prospects for producing oil have always been condemned by its own experts, oil has at length been discovered by Americans and is now being produced in growing volume in three different localities. After two generations of sterile skepticism there is now little reason to doubt that England, despite its long history of failure, is potentially just as prolific a source of oil as geologically similar areas in the United States which have long been exploited with moderate success. Americans recently discovered the first really commercial oil field ever known in Hungary. Americans also have discovered and developed within the last few years the most important oil field ever found in Germany, although Germany has scores of salt domes and other favorable attributes of oil-producing regions and has carried on studious, diligent and intelligent search for oil fields for years, spurred to unusual effort in this realm of her internal economy by her dire need for liquid fuels and lubricants. How is it to be explained that these long established, progressive societies, in spite of desperate need, fail to find the resources which are revealed so quickly and easily within their own borders by the American technique? The suspicion grows that physical conditions within the earth's crust impose fewer and less formidable obstacles to the development of commercial oil fields over much of the land area of the globe than are raised up by our prevailing mental and social climates of opinion. The limitations put upon the discovery of oil on earth today are more mental and social than physical. Gold is where you find it, as the old adage has it, but oil must be sought first, at least, in the mind. If there be any validity whatever to this view, the implications cannot but be significant to other industries, to science at large, to depressed national economies and to nations torn by war.

But to return to the subject under discussion: In summary, it may be said that the early participation of geologists in the work of solving the problems of the oil-producing industry, initiated as it was within a few years after the birth of the American industry, constitutes a pioneer venture of science into industry. By the time fellowships for scientists to work on industrial problems in general came to be established in America, the petroleum geologist had already attained flattering recognition. Geology, the inexact, cultural science, operating in the field of oil production, blazed a trail along which its older sister sciences, chemistry and physics, advanced years later to revolutionize the technique and efficiency of petroleum refining. But the greatest contribution of geology to the petroleum industry arises from its success in impressing upon the industry a comprehension of its own true character, namely that of a geological enterprise. In doing this it has also demonstrated a most effective method for cooperative effort between industry and science generally; that is, the effective dissemination of the basic facts of the science in question and of the scientific point of view throughout the rank and file of the personnel of the whole industry.

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Well Logging Unit shown in these views had to be floated on a barge into a Louisiana bayou to the well tion.

BAROID WELL LOGGING SERVICE assures the operator accurate and immediate information on the oil, gas, and salt content, and the rate of penetration of the formation encountered during drilling operations. This information is obtained directly and continuously through drilling mud analysis rather than by deductive methods.

In drilling a well, the bit drills up and disintegrates a cylindrical core of the formation being drilled. If gas, oil or salt water are contained in the pore spaces of this core when it is drilled, the content of the pore spaces must of necessity be picked up by the drilling fluid. If the drilling fluid is continuously analyzed upon its return to the surface, and correlated with the depth from which the cuttings came, the gas, oil or salt content of the formation can be accurately determined.

In addition to all equipment for making these determinations, complete core analysis equipment is included in each Logging Unit to determine permeability and porosity of cores.

BAROID WELL LOGGING SERVICE has proved extremely valuable in:

1. Minimizing coring.
2. Correlating formations.
3. Determining oil-gas, oil-water contacts.
4. Locating points for casing and testing.
5. Detecting washouts before pipe failure.

Baroid Well Logging Units are available with trained operators, or trailers can be leased without operators. Illustrated literature on request.

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DRILLING CONTRACTORS' NOTEBOOK

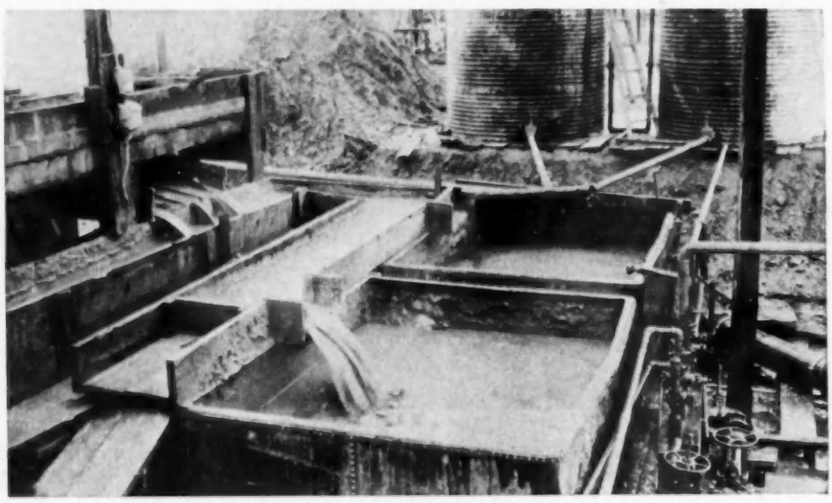
Helpful Suggestions For Those Interested In Drilling Methods

Operating Ideas Maintenance Hints New Rig Hook-ups

Published as a regular feature of THE OIL WEEKLY

1. MUD CONDITIONING

Arrangement of Shakers, Flumes and Vats Permits Quick Change of Gas-Cut Mud



These suction vats and flumes equipped with wooden gates facilitate quick change of drilling mud.

ON wells which at times require drilling mud to be changed quickly and completely due to gas cutting, The Texas Company installs shale shakers, steel suction vats attached to the pumps and several flumes equipped with wooden gates so the flow of mud may be changed, or stopped altogether.

The derricks are built on substructures so the returns will flow from the surface or conductor pipe at a convenient height for directing the passage to the shakers and through the flumes to the suction vats. The main flume carries the mud and cuttings to a box header which delivers it to either or both of two shale shakers. Side flumes with wooden gates, made of 2-inch planking, conduct the mud to the shakers. The gates are used to select the shaker desired.

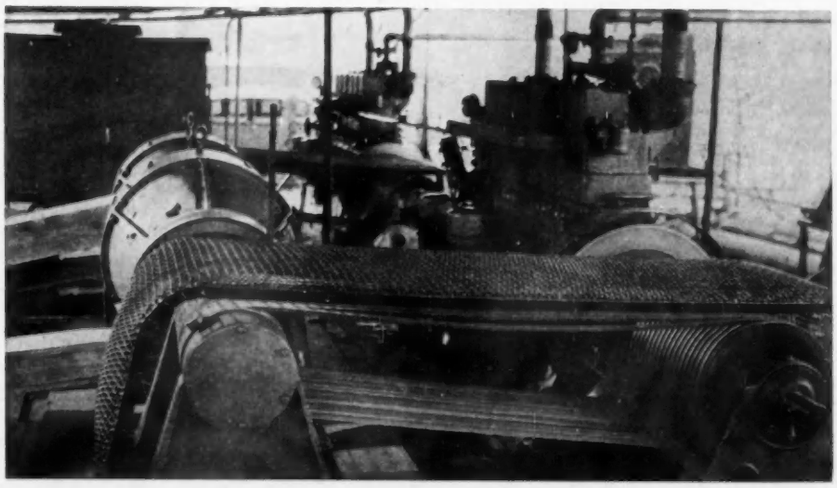
The separated drilling mud is caught in a second flume below the shaker frames, which in turn delivers it to a distribution flume leading to either or both steel vats. The distributor flume describes two right-angle turns, doubling back on itself to conserve space. Both ends of this flume are open, so that when the gates are shut, the mud will flow to the discard pit and fresh un-cut mud will be brought in from the reserve supply without contamination or the need of shutting down the rig.

2. SAFETY

Woven Wire Guard for V-Belt Drive

A GUARD of heavy woven wire attached to a frame of 2-inch angle iron over multiple V-belt drives provides protection for employes on the rig. Several cuts are made in the iron, laid with back to the belts, to form bends at each end. The wire cloth is tacked inside the angle. Each end of both angles is bolted to the sub-frame of the grooved pulleys on the engine and the generator. The guard is easily removed by backing off the nut of the bolts.

The guard is sturdy enough to support the weight of an average man without collapsing onto the belts.



Patrick & Tyrell Drilling Company has installed this guard over a V-belt to afford protection to employes.

What have you accomplished if you are not sure the surveying records placed before you are accurate? How much time—how much money is involved? Does it pay you to buy anything but the best?

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That applies to well surveying services too. There is always an **important reason** for ordering a survey—hence, it will pay you to use nothing but the best and most reliable service.

Sperry-Sun's SURWEL GYROSCOPIC Surveying Service renders an accurate, reliable, permanent and double checked record of the course of the hole to any depth. **It's the only service which by its double in—and out—survey guarantees that you cannot get a false record.**

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3. LUBRICATION

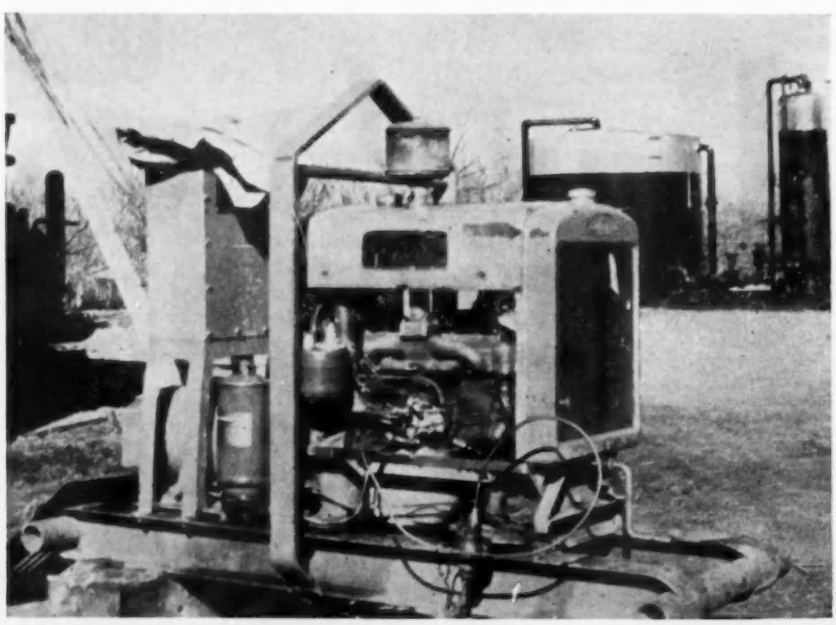
Oil Drums On This Rack Are Tilted By Automobile Steering-Gear Assembly

An automobile steering-gear assembly is used to turn the drums on this rack.

ON rigs that require large quantities of lubricants, a drum rack to turn the drums end-over-end, when necessary, facilitates handling of the oil.

To make such a rack, a base of 2-inch pipe 3x9 feet is made, upon which are welded 4 A-frames of angle iron. Drum frames are made of pipe somewhat longer than a standard drum, with pins to fit in gudgeons at the top of the A-frames. An adjustment for length is provided by welding 1¼-inch pipe, which slips in the 2-inch base and is secured with set screws. For a 3-drum rack, three small automobile worm-and-gear steering gear units are installed with the posts cut short with engine cranks attached for turning. The lower part of the drum frame has arc lugs which fit snugly in the chime of the drum, and a longer cross member to prevent the drum from tipping out before being locked in the frame. The top section is also provided with lugs which fit in the chime, so that when the set screws are tightened the drum is held rigidly in place.

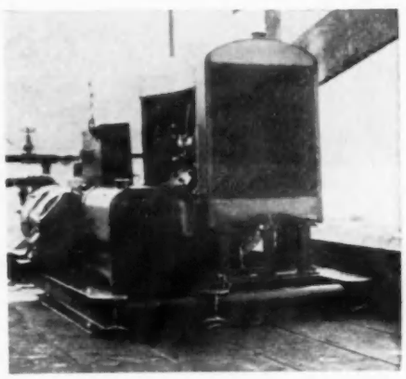
The drum may be tilted with the crank just enough to withdraw the required amount of oil, then straightened again.



A bail makes it possible to readily pick up this self-contained lighting unit with a truck boom for quick transfer to a new location.

4. RIGGING UP

Generating Unit On Derrick Floor



This generating unit is mounted on derrick floor to eliminate a special cover.

G. & M. DRILLING COMPANY mounts its generating unit on the derrick floor, eliminating a special cover for this equipment. The generator, 4x8 feet, is mounted on a skid base with cross bars of 3-inch pipe. It is installed at the rear of the rig on the slush pump end.

5. TRANSPORTATION

Bail Aids Transfer of Equipment

TO facilitate movement of equipment, Helmerich & Payne attaches a bail by welding flat bar iron to skid foundations at the point of balance on each side, joining them at the top for hooking a block that may be attached to the boom of a truck. A cross-brace is welded at the first angle above the piece of equipment to prevent the bail from collapsing when the machine is lifted by the hoist.

HIGHLIGHTS IN THE WEEK'S NEWS

Courts

High court to hear East Texas proration attack April 22

The Texas attorney general's department has been advised that the United States Supreme Court will hear oral arguments April 22 on the state's appeal of the first Rowan & Nichols Oil Company case, in which lower federal courts held an East Texas proration order invalid. The court's ruling is expected to influence final disposition of two other attacks pending in lower federal courts, on East Texas orders.

Control

Roosevelt suggests Cole bill modification

President Roosevelt last week suggested modification of the administration's bill for federal control of oil production in a move to gain passage at this session of Congress. The suggestion was made to Representative William P. Cole, Jr., who introduced the measure and who heads a subcommittee of the House interstate and foreign commerce committee that recently conducted hearings on the bill. A story on the president's compromise appears on page 112 of this issue.

Compact hearing shows need for continuing rigid curb

Consumption of all oils produced in the United States will increase only three or four percent during the rest of 1940 over 1939 consumption, according to a forecast made last week by Dr. A. G. White of the United States Bureau of Mines. Speaking before the Interstate Oil Compact Commission in a meeting at Oklahoma City, White said that domestic demand was up some seven percent, but that this was offset largely by a reduction of exports and an increase of imports. The meeting also heard federal control denounced in no uncertain terms.

Despite the fact that consumption during the first quarter of 1940 was higher than bureau estimates, not all the oil produced was consumed, White declared. The department estimated that consumer demand would be 322,000,000 barrels for the quarter. There was actually produced 340,000,000 barrels, of which only 326,000,000 was consumed. The remainder going to storage.

White pointed out that in the export trade, shipments to Germany had ceased, and oil going to the allies was greatly curtailed. Foreign consumption where shipments may still be made has been greatly reduced by the warring nations who have restricted consumption within their boundaries. Civilians are rationed as a means of conserving the supplies on hand. Because of the decline in the value of foreign exchange, purchases here have been reduced. In addition, there are vast supplies of crude from other countries available to the warring nations, while during the first world war all oils were obtained from the United States, Mexico and Persia.

Exports decreased about 2,000,000 barrels per month during the first quarter of 1940, which means a decline ranging between 20,000,000 and 25,000,000 barrels for the year if continued at the same rate. Most of the lost exports were in the fuel oil group, and the export of aviation gasoline is not as high as might have been expected as a result of the war. In the event of an active war, exports might increase to some extent.

Although storage has increased, White saw no immediate danger from this other than from the psychological standpoint. If, because of the large supply of gasoline on hand, the market should soften, then an ensuing price break might well spread to the crude market, he indicated.

The refineries, White thought, have done about as well as could be expected when the demands made upon them for fuel oil are considered. The yield of gasoline has been low, about 43 percent. By March 31, the refiners had on hand about 15,000,000 barrels more gasoline than at the same time last year. There is a demand for about five percent more than was consumed in 1939.

There is no need to increase crude production during the summer, he said, because there is now in storage a surplus sufficient to meet all requirements reasonably to be expected during the second and third quarters of the year. Because the first quarter demand was abnormally high, there is no reason to expect an increase in this demand during the high consuming season.

Need 3,600,000 Barrels Per Day

He said that there were no excessive stocks outside California. If the country limits production to 3,600,000 barrels daily for the next six months, supply and demand will balance approximately, he estimated. It is possible that demand might reach 3,700,000 barrels during the third quarter, but this is doubtful.

Fred Van Covern, director of statistics for the American Petroleum Institute, presented figures which substantiated White's estimates, as did a similar statement from the Independent Petroleum Association of America.

Van Covern pointed out that crude stocks are now lower than they were a year ago by about 20,000,000 barrels. He estimated current stocks at 250,000,000 barrels. He estimated that motor fuel demand would exceed 1939 by no more than five or six percent, but that the decrease in exports will cut the total increase to some three percent.

He pointed out that increased yields of light fuels this year are not only necessary but possible and entirely within the limits of flexibility of present refining facilities. Neither is it immediately apparent that the shifting of gasoline and light fuel oil yields within the necessary limits will affect octane requirements. If finished and unfinished gasoline stocks as of September 30, 1940, are higher than in 1939, it will be a direct reflection of the continuation of current levels of crude oil production, Van Covern concluded.

Ernest O. Thompson, compact member from Texas and member of the Texas Railroad Commission, suggested that all the compacting states issue an order this month fixing allowables for May, June and July. This plan, he urged, would allow operators to work off excess gasoline stocks and meet current demand. He also said that allowables should be fixed at figures indicated by Bureau of Mines estimates.

Thompson pointed out that another review of the stock situation could be

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had at the quarterly meeting of the Compact Commission in July, when plans for the later months could be made. He urged that this program would be a stabilizing factor in the industry.

He read a telegram from Lon Smith, chairman of the Texas Railroad Commission, who said that while he would not commit himself to an iron clad rule of following Bureau of Mines estimates it was his opinion that the commission should fix the Texas allowable for May at the figure estimated by the federal agency. He said that this could be done if no special allowables were granted by the commission during April. The Texas statewide proration hearing will be held in Austin on April 18, Smith said, and indicated that a decision could be made then.

A press poll of the other states attending the compact meeting indicated that Kansas, Illinois, Michigan, Oklahoma and New Mexico favored the plan advocated by Thompson.

The decline of production in Illinois seemed to be the foremost hope of relieving the market situation. In the course of his discussion, White pointed out that if Illinois produces 400,000 barrels daily, all the increased market would be absorbed there. If it declines, then other states may increase their production proportionately without disturbing the situation. Oil executives present were virtually unanimous in their opinion that Illinois production was on the downgrade. One estimated that it would be down to 300,000 barrels daily at the end of five months. They deprecated reports that deeper production would be found, and thought that even though drilling of inside locations continues in the proven areas, the added production will not sustain the present levels.

The Independent Petroleum Association of America, through a prepared statement read by Harold Fell, declared that "It had been suggested that a desirable level of gasoline stocks on September 30, 1940, would be 70,000,000 barrels to prevent unnecessary waste. The figures show above 100,000,000 barrels now. If the 70,000,000 barrels is a desirable figure, the committee said that crude oil production during the second quarter of this year should not exceed 3,550,000 barrels daily. The estimated daily average for the first four weeks of March was 3,857,900 barrels."

"The refining division of the petroleum industry has failed to measure up to the duties and responsibilities for a balanced supply and demand," declared Frank Buttram, president of the Independent Association. "As I see it, therefore, it is absolutely essential that the individual regulatory bodies in the different oil producing states take immediate steps to reduce production to consumptive demand. If they fail to measure up to their duties, privileges and responsibilities, the present conservation program will fail, and national regulation of some sort will result."

Ernest O. Thompson, in a prepared address, strongly denounced the Cole Bill, which would place oil under federal government control.

Oil not produced in the manner prescribed by a commissioner working under the Secretary of the Interior would make the producer liable to a fine of $1000 a day or two years imprisonment, or both, Thompson pointed out, declaring the commissioner would have authority to supervise drilling, producing and operating oil wells.

"The science of producing oil is so new and changes so fast that scarcely any two petroleum engineers can agree on just how a particular well should be operated," Thompson said. "Each well is a separate study and problem. Engineers cannot agree always on even so simple a problem as the spacing of wells. Here again each field is a separate problem, and a separate study.

"It is quite a bold step to say by law that you must do thus and so or we will put you in jail and fine you $1000, when the experts are not yet able to agree on what is the best thing to do."

Thompson said that when agitation for federal control of production started, it was accompanied by an urge for stability of production by groups within the industry who feared the effect of East Texas production upon the markets.

East Texas Controlled

"The East Texas field has long since been brought under successful and effective control by the state of Texas," Thompson said. "We have found the way to effectively preserve bottom-hole pressures, and we know that 3,500,000,000 more barrels of oil will be recovered from that one field over and above the first estimate of ultimate recovery. This is due to preserving the pressures. Nineteen thousand of the 27,000 wells in that field are still flowing. The field is 10 years old. The pressures have been maintained. Last month the pressure increased 1½ pounds, and the month before it increased 1¼ pounds.

"There can be no complaint over the handling of the greatest oil field in the world now that we can look the question squarely in the face. True, many people say too many wells have been drilled, but that has nothing to do with physical waste. It is a matter of economics. These wells furnish the greatest fund of underground data ever yet obtained on any field yet developed.

Congress has the power to control interstate commerce, Thompson said, but "mere production is not commerce, and as such it could never, even by the fondest stretch of the imagination, be considered as interstate commerce.

"Congress simply does not have the power to control mere production," he added.

The Texas official called attention to a recent address of Secretary of the Interior Harold L. Ickes in which he called for Congressional approval of the Cole bill.

"'If a state, having a conservation law, should nevertheless permit wasteful practices, then again federal officials could do what the state neglects to do,'" Thompson quoted Ickes. "'But in no instance would federal officials have any right or power to interfere if the states themselves properly supervised the production of their own oil resources.'

"That all sounds very smooth," Thompson said, "but who is to decide whether the state's themselves have properly supervised the production of their own oil resources?

"If the federal government should ever be given the power to step in and say that a state was not properly supervising the production of their own oil, then there is no limit to what the federal government could do to a state. The findings of the federal comissioner would have to be followed by the states.

"Every encroachment on states' sovereignty by the federal government has been because spineless state officials or faithless officials have sat supinely by and failed to do their duty in protecting the sovereignty of their states. Better that the job be poorly done by the states and that the states' sovereignty be preserved, than that a perfect job be done by regimentation . . .

"As a state official from an oil-producing state, I feel proud of the progress that the states have made, and I am happy to have had a part in this progress."

State Department suggests arbitrating Mexico dispute

Disclosure was made by the State Department at Washington that a note proposing arbitration was handed to Ambassador Najera April 3 for transmission to the Mexican government. Beyond admitting that the note had been sent, Secretary of State Hull refused to discuss the situation or give any hint of what the proposal involved.

The department's action was taken in Washington as indicating that no hope is felt of securing a settlement of the controversy by negotiation.

Timed to reach Mexico during the current political campaign, publication of the note, which may be given out in the near future, is seen as having a definite influence upon the election of the Cardenas-supported candidate for president and a notice to the Mexican people that there is no truth in President Cardenas' contention that the failure of the Washington government to push the matter indicates that the United States is not seriously opposed to the expropriation. Also, it was said, the note negatives the claim of the Mexican government that the expropriation was purely a domestic question.

The demand by Secretary Hull that Mexico submit the quarrel to arbitration is the most forthright step the Washington government has taken since the Mexican properties of American and English oil companies were expropriated in March, 1938. At first hopeful that the companies and the Mexican government could come to an agreement, the State Department was finally forced to take a hand in the situation when it became apparent that President Cardenas has no intention of making any reimbursement for the properties at anything like the figures set on them by their former owners.

From time to time, it has been reported that a settlement was on the verge of agreement, usually contemplating repayment of the companies from the proceeds of the oil taken from their former properties, but each time the negotiations struck an insurmountable barrier.

The formal effort to secure arbitration is seen in Washington as a notice to the Mexican government that unless it takes steps to make reparation it will lose much of the friendly consideration of the United States which has been a major support of Mexico's internal economy for several years.

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Roosevelt Offers Compromise To Speed Control Measure

STREAMLINING the Administrations oil control to conform to the views of the industry and the producing states in the hope of securing enactment at this session of Congress, has been suggested to Representative William P. Cole, Jr., by President Roosevelt, it was disclosed last week by Cole, chairman of the oil group of the House interstate and foreign commerce committee.

The President suggested the measure might be restricted to states without control legislation or where control has not been effective, Illinois and California in the first class and Louisiana in the latter.

The President's letters, the first written March 4 on his return from a southern fishing cruise, and the second on March 26, in response to a request by Cole that he clarify his suggestion, apparently were prompted by the uncompromising opposition of industry and state representatives to full federal control.

There was no reason to believe, however, that either group would modify its position in the light of the proposed amendments, since the bill would still give the government authority to determine whether a state is adequately enforcing its conservation law. The change was suggested during hearings before the subcommittee, but received little support.

Cole made the correspondence public following a meeting of his group at which it was decided no further hearings should be held. No action was taken, however, on either the bill or the President's suggestion.

Following the meeting, the chairman explained the committee was delaying action until it received printed copies of the testimony given at the hearings, but expressed a view that some decision would be reached before the end of the month.

Neither Cole nor members of his subcommittee would comment on Roosevelt's proposal, but questions propounded to witnesses during the hearings indicated that some of the members, at least, were favorably disposed toward legislation putting the government in control where the states failed to act.

Meanwhile, it was learned that severa additional problems have been presented to the subcommittee, arising out of war conditions. Specifically, the committee has had its attention directed to complaints of excessive tanker rates from the Gulf Coast to the Atlantic seaboard since inception of the European war, resulting in material increases in prices of bunker and fuel oils and allegedly preventing many companies owning no tankers from getting their products to the Eastern markets by water.

Tanker Angle.

Representative Vincent F. Harrington last month introduced a resolution in the House calling for an investigation of the situation by the Merchant Marine Committee. It was indicated opposition would be offered to such a course, the Interstate Commerce Committee believing such an inquiry is within its province.

The committee also has been asked to take up the question of federal title to the underwater oil fields on the Pacific Coast and also to investigate the import situation, but Cole indicated it would not act in those matters since both have been under consideration of other House committees.

In his letter of March 4, President Roosevelt indicated he had changed his view somewhat with respect to the oil situation and the desirability of full federal control.

"You will recall the conference last summer at which the need for such legislation and the provisions of the proposed measure were discussed at length and that I endorsed fully the objectives of the bill which I asked you to introduce," he wrote.

"Subsequent events have sharpened my conception of the tremendous importance of petroleum to the present and future well-being of our country and, upon returning from my recent trip, I was pleased to learn that your subcommittee has practically completed the difficult task of receiving and studying the testimony presented at your several hearings.

"I am hopeful that your subcomittee will frame suitable legislation to assure the efficient production of oil and gas from our petroleum reserves, which will give due recognition to the views expressed at your hearings by the officials of the oil-producing states and representatives of the oil industry. The proper co-ordination of federal and state responsibilities in oil conservation, without impeding the oil industry in the continued improvement of its technological processes, and keeping in mind the welfare of those employed in the oil industry and the needs of consumers, is a problem which requires your best thought and effort. I am confident that you can segregate the essential considerations of this problem and provide an adequate solution."

Cole in Doubt.

In his reply to the President, Cole reported that, upon receipt of his letter, he had immediately called a meeting of his subcommittee which, he said, was in some doubt as to just what was wanted in the bill.

Referring to the phrase "due recognition to the views" of the states and the industry, Cole asked whether the President was "cognizant of the fact that the governors of nine of the oil-producing states appeared before us in person and all the other states, with the exception of Illinois, either through representatives or by letter, protesting vigorously against the passage of the proposed legislation and further cognizant of the fact that the regulatory agencies of all such states did likewise.

"In addition to the foregoing expressed opposition, the industry, speaking through representatives of the American Petroleum Institute, the Independent Petroleum Association and the Mid-Continent Oil & Gas Association, likewise voiced lengthy and strong objection to the passage of any such legislation.

"If your familiarity with the proceedings before the committee is such that the foregoing was a matter of knowledge to you before your letter of March 4th was prepared, then the committee is wondering whether your reference to such attitude with the request that we give 'due recognition' thereto, suggests any different approach to the problem before us, from a legislative standpoint, than that embodied in H. R. 7372, introduced by me last July at your request."

Replying to that question, the President, in his second letter, admitted he was familiar with the situation and disclosed that he had been informed by some of the state officials personally of their attitude toward the bill.

President Informed.

His original suggestion was made, he said, "with the thought that the members of your committee, most of whom have been in touch with the problem of oil and gas conservation since 1933, on the basis of that experience could frame suitable legislation, with H. R. 7372 as a guide, which would go a long way toward meeting the essential objections of those who opposed that measure but which would adequately prevent the wasteful production of oil and gas and assure permanently the conservation of our petroleum resources."

This is not a different approach to the problem, he said, but, rather a suggestion for modification of the enforcement procedure.

"As introduced by you at my request," he explained, "H. R. 7372 provides for the establishment in the Department of the Interior of an office of petroleum conservation and the transfer to that agency of the units of the federal government now engaged in oil conservation, and outlines the functions of that office in the assembly and dissemination of information and the conduct of research and investigations in matters relating to petroleum and petroleum conservation, including the reporting to specified state authorities of oil production practices found to be wasteful. These provisions parallel closely the corresponding provisions of the measure which your committee drafted and recommended in 1935 and it is my understanding that

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no material objection has been offered to them.

"As I understand the controversy over H. R. 7372, there is little objection to the federal government prescribing, in order to conserve our petroleum resources, standards of production to which oil producers should conform as a condition to the shipment fo their oil in interstate commerce. The principal objection to the proposed legislation seems to be that it provides for federal enforcement of these standards in all fields regardless of the adequacy of state enforcement of such standards.

Limit Bill's Application.

"This being the case, I should think it would be possible to agree that the standards of production necessary to qualify oil for shipment in interstate commerce should be prescribed by the federal government, but that these standards should be enforced by the federal government only if an authorized federal agency finds that the states have failed to enact laws requiring conformity with federally prescribed standards or have failed persistently to enforce compliance with such standards when required by state laws. Insofar as the states fail to enact or enforce oil and gas conservation laws requiring conformity with the standards prescribed by federal law, I should think that oil producers should be given the right to qualify their oil for shipment in interstate commerce by entering into voluntary agreements, subject to the approval of the authorized federal agency, to conform with such standards. Legislation along these lines would in effect be an extension of the principles of the Act of February 22, 1935, known as the Connally law.

"I hope that this approach will be helpful to your committee and that it will aid you in framing promptly suitable and adequate legislation which will receive the support of your committee and of the Congress."

It was pointed out that even if the House committee was able to take final action on the bill by the end of this month, and submitted a favorable report, there would not be sufficient time to put it through the House and then secure the concurrence of the Senate, where, undoubtedly, further hearings would be sought by opponents of the legislation.

State officials oppose modified federal control

Opposition to passage of a modified federal oil control measure was voiced by Oklahoma and Texas officials.

In Oklahoma City, Governor Leon C. Phillips, who headed a delegation of eight governors protesting the bill in Washington, said the proposal may force some states to adopt conservation measures.

W. J. Armstrong, chief conservation officer for Oklahoma, said the modified bill "probably will be as vicious as the original bill."

Commissioners Ernest O. Thompson and Jerry Sadler of the Texas Railroad Commission maintained the president's suggestion did not remove a threat of federal control, both pointing out there was still the question as to who would decide whether the states were properly enforcing conservation laws.

Bill would stop oil companies transporting oil in boats

Divorce of water transportation from other branches of the oil industry is sought in a bill introduced in the Senate April 4 by Senator Guy M. Gillette of Iowa, who last session sponsored a bill to divorce pipe-line transportation.

The measure would make it unlawful on or after January 1, 1941, for any producer, refiner or marketer of petroleum products to operate tankers or barges, and violations would be subjected to the penalties of fines running to a maximum of $10,000 for each offense committed.

The purpose of the bill is to make effective a policy of Congress enunciated in its opening paragraph of protecting consumers of petroleum products from exorbitant charges for fuel oil and petroleum supplies "brought about by the arbitrary power exercised by producers and refiners of petroleum products who have heretofore occupied the dual position of producers and transporters."

Although Senator Gillette aimed his bill at water transportation and titled it the "Oil Tanker and Barge Divorcement Act," its provisions, as written, it was held in some quarters, would divorce all forms of transportation since it would make it unlawful "for any person directly or indirectly to be engaged in the transportation of petroleum products while such person or affiliate of such person is also engaged in one or more of the other three branches of the petroleum industry, namely, production, refining and marketing."

The bill also calls upon the attorney general immediately to "examine the relationships of persons now engaged in one or more branches of the petroleum industry and to institute suits in equity in the United States District Courts for the issuance of mandatory injunctions commanding any person to comply with the provisions of this act."

Effort to retain import taxes in trade agreements fails

The oil industry's last chance to secure some assurance that import taxes would not be bargained away in making reciprocal trade agreements with other countries failed April 2 when the Senate, by a vote of 36 to 45, rejected the McCarran amendment which would have made safeguarding the taxes the price to be paid by the Administration for a 3-year extension of the trade agreements act.

The amendment was one of several the Senate voted down as it prepared to pass the extension resolution. It was defeated despite an effort of Senator McCarran of Nevada to attract support of the dairy and agricultural blocs by expanding it so as to prohibit changes in any import excise taxes which may be adopted in the future, as well as the four existing levies.

Gossip at the Capitol was that the Administration had secured the necessary strength to defeat opposition to the legislation at the cost of "two judgeships and 50,000 tons of sugar." Two members of the Senate, it was said, will be appointed to the Federal bench, and the quota of sugar to be produced in Louisiana and Florida under the sugar control act will be increased.

Debate on the McCarran amendment, as in the case of similar amendments unsuccessfully pressed in the House, revolved around the intent of the Senate to protect the excise taxes when they were adopted. Arguments that it was never intended that they should be used for bargaining purposes proved ineffective, however, against the well-oiled machinery of the Administration.

Pipe-line proration applied in scattered areas

Pipeline proration was applied in Kansas, West Texas, North Texas and New Mexico fields last week.

Sinclair Prairie Oil Company and Stanolind Oil & Gas Company have reduced crude purchases in East, Central and Northwest Kansas pools 25 percent, effective March 29.

Pipe-line proration was applied to all West Texas crude purchases by Sinclair Prairie Oil Marketing Company effective April 1, while on the same date Humble Oil & Refining Company increased its acceptances from the Wasson field from 75 to 90 percent. The former restricts its take to 85 percent of the daily allowable, and the cut generally applies to Winkler and Ward counties where oil is gathered by The Texas-New Mexico Pipe Line Company. Humble Oil & Refining Company adopted pipe-line proration in the Wasson field February 15 when the allowable was raised beyond outlet, and Shell Pipe Line Corporation introduced a similar program March 1. The field allowable was cut back to 35,000 barrels daily on April 1.

Curtailment of crude runs and a temporary ban on new well connections placed in effect April 1 by Sinclair Prairie Oil Marketing Company in the K-M-A, Consolidated and Hull-Silk fields will have an adverse influence upon scheduled drilling in these deep lime areas. The company restricted its runs, which are handled by Sinclair Refining Company, to 75 percent of the allowable. The latter has materially contributed to the expansion of production of the above fields the past 12 months through the building of a new 6-inch carrier that was placed in operation last May and the laying of an 8-inch parallel line that began moving oil March 18, giving it a 23,000-barrel daily outlet.

Sinclair Prairie Oil Marketing Company applied pipe-line proration to its connections in Lea and Eddy counties, New Mexico, cutting to 85 percent of allowable. The company's purchases are handled by The Texas-New Mexico Pipe Line Company. It is understood that no new connections will be made for the present. Producers will be credited with back allowable while the curtailed buying order is in effect, and will be permitted to make up the deficit when a market is available.

Texas Commission Schedules Statewide hearing April 18

The Texas Railroad Commission has called a statewide oil and gas proration hearing for April 18.

MEN IN THE INDUSTRY'S NEWS

CURT L. HENDERSON, vice president of Vickers Petroleum Company, Wichita, was elected president of the Western Petroleum Refiners Association at the organization's annual meeting last week in Wichita. He succeeds L. B. Simmons, Duncan, Oklahoma. Other officers chosen were R. W. McDowell, Tulsa; T. M. Martin, El Dorado, Arkansas, and C. W. Cahoon, Jr., Wichita Falls, vice presidents.

N. W. SHIARELLA, Miller & Shiarella, Owensboro, was elected president of the Kentucky Oil & Gas Association, at the group's annual meeting held in Louisville last week. Other officers named are M. A. Arvin, Owensboro; M. G. Powers, Huntington, West Virginia and P. C. Van Gilst, Ashland, Kentucky, vice presidents; E. L. McDonald, Lexington, secretary, and Paul D. Bushong, Owensboro, assistant secretary and treasurer.

W. M. GUTHREY, The Texas Company, has been elected president of the Ardmore (Oklahoma) Geological Society. Also named were Paul L. Bartram, Phillips Petroleum Company, vice president, and Tom L. Coleman, United States Geological Survey, secretary-treasurer. The group plans a field trip, to be led by Dr. C. W. Tomlinson, for study of structure and formations contiguous to Pure Oil Company's recent strike near Madill, Oklahoma.

E. P. VAN ZANDT, JR., geophysical department employe of Gulf Oil Corporation in the Fort Worth division office, has been assigned to scouting duty in North Texas.

FLOYD C. DODSON, West Texas consulting geologist and producer with headquarters at San Angelo, is recuperating at his home from a recent emergency appendectomy.

JOHN R. SUMAN, vice president of Humble Oil & Refining Company, Houston, and Walter P. Napier, president of Alamo National Bank, San Antonio, will be principal speakers at the third annual South Texas Chamber of Commerce oil men's jubilee banquet Friday, April 19.

W. HARLAN TAYLOR, supervisor of the Southeast Dvision of Petty Geophysical Company at Jackson, Mississippi, has been appointed supervisor for the Gulf Coast District with headquarters in Houston.

FRED MANNING, president of Manning & Martin, Inc., Denver, was in Casper, Wyoming, last week.

WILLIAM V. VIETTI, president of The Texas Petroleum Company, has been elected president of The Anglo-American Club of Bogota, Colombia. Mrs. Vietti is president of The Anglo-American Women's Club of Bogota.

RAY DODSON, representative of Tropical Oil Company in Bogota, Colombia, is in the United States on vacation.

SOUTH AMERICAN oil industry representatives who plan to visit the International Petroleum Exposition May 18-25 at Tulsa include Art T. Proudfit, East Venezuela manager for Standard Oil Company of Venezuela, Caripito; Joe A. Holmes, chief engineer for Standard Oil Company of Venezuela, Caracas; Dick B. Kester, superintendent for Standard Oil Company of Venezuela at San Joaquin; Lawrence Cade, drilling superintendent for Standard Oil Company of Venezuela, San Joaquin; A. N. Lucie-Smith, The Caribbean Petroleum Company, Maracaibo; L. J. Van Dyjk, engineer for The Caribbean Petroleum Company, Maracaibo, and Ray Dodson, representative of Tropical Oil Company, Bogota.

WALTER S. HALLANAN, president of Plymouth Oil Company, Pittsburgh, told stockholders in his annual report last week that the "ultimate effect" of the European war on the oil industry is "highly problematical." He added "it now seems unlikely that there will be any broadening in the demand for exports in the near future."

WARD BEAN, geologist for Shell Oil Company, has returned to Tulsa after an 18-month survey of operations in Ohio.

WILLIAM WILDE, president of Republic Natural Gas Co., and Alfred Hurlburt, vice president, both of Dallas, were visitors in Corpus Christi.

W. B. PARDOE, president of Dapar Oil Oil Company, Grand Rapids, has been chosen to head a new membership division of the Oil & Gas Association of Michigan. He has been secretary and membership chairman of the association for the past year. The new division, created because of the large influx of operators the past two years into southwestern Michigan, will have offices in Grand Rapids.

W. B. PARDOE
Heads Membership Division of Michigan Oil & Gas Association.

LELAND HARRISON, representative of Tide Water Associated Oil Company, has established an office in the Hamilton Building, Wichita Falls, marking the reentry of the company into the North Texas district with geological, land and scouting departments. The company acquired controlling interests in a group of producing properties in the K-M-A deep lime field last September.

RAYMOND J. WALTER has taken up his duties as executive secretary of the American Petroleum Institute's Regional Public Relations Committee No. 5, comprising the states of Texas and Louisiana. His headquarters are in the Gulf States Building, Dallas.

R. G. A. van der WOUDE, president of Shell Union Oil Corporation, reviewing 1940 prospects in his annual report, declared "any improvement is expected to be limited to domestic business as the outlook for export trade is not at all promising."

H. G. MOULTON, president of the American Institute of Mining & Metallurgical Engineers, will be guest of the Gulf Coast chapter at a meeting in Houston April 8. John R. Suman, vice president of Humble Oil & Refining Company, will be toastmaster.

J. C. POOLE and A. M. Cole presented a paper on, "The Keeran, East Placedo, Placedo and Heyser Fields of Victoria and Calhoun Counties, Texas," before the Houston Geological Society last week. K. D. Owen and J. J. Travis also collaborated on the paper.

J. HOWARD PRESSLEY, manager of the land and geological departments of Sun Oil Company in the Dallas division, departed late last week for a check of the company's lease holdings in Mississippi and Alabama.

WALTER K. LINK, chief geologist of Standard Oil Company of Louisiana, is on a business trip to New York and later will atend the meeting of the American Association of Petroleum Geologists in Chicago.

W. L. DOUTHIT, West Texas scout for Magnolia Petroleum Company, has been transferred from Midland to Ardmore to cover operations in South Oklahoma. He was succeeded at Midland by Dan 3. Green, formerly in the company's geological department.

HENRY C. JUDD has been elected assistant treasurer of Standard Oil Company of California, succeeding George J. O'Brien, recently elected company treasurer of the company. Judd joined the company in 1930.

W. A. DELANEY, JR., Ada Oklahoma, has been re-appointed chairman of the tax policy and advisory committee of the Independent Petroleum Association of America. Members are: F. A. Calvert, Oil & Gas Association of Michigan, Saginaw, vice chairman; C. P. Watson, California Oil & Gas Association, Los Angeles; Lloyd Williamson, California

Star Oil Company, Los Angeles; S. A. Yarnell, Yarnell-Carlson Oil Company, Wichita; L. M. Moffitt, Louisiana-Arkansas Division, Mid-Continent Oil & Gas Association, Shreveport; Merle Becker, W. C. McBride, Inc., St. Louis; Hollis Watson, Wilmor Oil Company, Artesia, New Mexico; R. E. Parr, Phillips Petroleum Company, Bartlesville; J. G. Puterbaugh, McAlester Fuel Company, McAlester, Oklahoma; E. H. Balch, Barnsdall Oil Company, Tulsa; E. H. Moore, E. H. Moore, Inc., Tulsa; Sam J. Brill, Kendall Refining Company, Bradford, Pennsylvania; J. C. Hunter, Grisham-Hunter Corporation, Abilene, Texas; M. W. Mattison, Guiberson Oil Company, Dallas; James Dewitt May, Stodel Oil Company, Dallas; A. A. Seeligson, Transwestern Oil Company, San Antonio; and Fred Sehmann, Petroleum Producers Company, Wichita Falls.

PRESTON P. NIBLEY, senior in petroleum engineering at the University of Oklahoma, Norman, has been awarded a fellowship by Tau Beta Pi, honorary engineering fraternity. He had previously been designated the university's outstanding engineering student.

DR. IRVING PERRINE addressed the Oklahoma City Geological Society April 1 on "Geology of the Universe."

DR. CHARLES N. GOULD, geologist, traced the history of geology in Oklahoma before an evening meeting of the Oklahoma City Geological Society April 1st.

REX DAWSON, Carter Oil Company, was the principal speaker at the Oklahoma Oil Scouts Association dinner meeting, held April 5 at the Biltmore Hotel, Oklahoma City.

L. L. FOLEY, geologist, addressed the Tulsa Geological Society April 1 on "Regional Structure and Tectonics of the Mid-Continent Area."

CHARLIE GROAT, production engineer for Shell Oil Company, has been transferred from Tulsa to Wichita Falls.

FLOYD R. FARRIS, Stanolind Oil and Gas Company, will discuss "Influence of High Temperatures and Pressures on Cement Slurries" at a meeting of the A. I. M. E. April 8 at the University of Tulsa.

J. D. McCAMEY, director of safety for Carter Oil Company, will talk before the Engineers Club of Tulsa April 29 on "Engineering in Reference to Industrial Safety."

JOHN SCROGGINS, formerly with Stanolind Oil and Gas Company but now an operator in Texas, recently visited Shreveport.

BARNEY FEAGIN, JR., executive of Bar-Don Oil Company, Tulsa, visited Shreveport last week.

DR. ROBERT E. WILSON, president of Pan American Petroleum & Transport Company, New York, was a Houston visitor last week.

C. J. DAVIDSON and W. J. Weaver, Fort Worth operators, were in Houston last week.

GEORGE ETZ, formerly active in New Mexico and more recently engaged in developing holdings in the Slaughter field, West Texas, has organized the San Andres Production Company. Headquarters are at Lubbock, Texas.

PRESTON P. NIBLEY
Awarded Tau Beta Pi Fellowship

JOSEPH HORNBERGER, JR., geologist with The Texas Company, has resigned to go into business for himself. He will specialize in subsurface geology.

MATTHEW B. SWEENEY, agent in charge of Sun Oil Company's Dallas district office, returned to duty late last week after being ill for five months.

BARNEY HORRIGAN, in the scouting department of Sinclair Prairie Oil Company, has been transferred from Tulsa to Tyler, Texas.

WILLIAM SHIELS, engineering department employe of the Sun Oil Company, has resigned to become manager of Texas Blue Print Company, a Dallas concern.

DIED:

C. R. TYRRELL, 54, president of the Martell Petroleum Company, died in San Antonio March 28. He had been active in North Texas development before moving to San Antonio 17 years ago.

TOM M. HOLMES, veteran driller in West Central Texas, and his wife were fatally injured April 1 in an auto accident near Cross Plains, Texas, where they had resided the past 2 years.

FELIX QUINLAN, 88, producer of Tulsa, died April 3.

Houston University students organize geology society

Students at the University of Houston, many of whom are employed with oil companies, have organized a geological society, with Phillip Allin, Gulf Oil Corporation, president; E. J. Murdoch, Shell Oil Corporation, vice president; Russell Casey, Woodley Petroleum Company, treasurer, and John Kelly, The Ohio Oil Company, secretary.

Fred E. Smith and R. C. Woods, instructors in the department of geology, are sponsors of the society.

Students majoring in the study of geology organized the society to operate on the same plan and principle as geological societies in other colleges and universities.

Paul Weaver, chief geophysicist of Gulf Oil Corporation, is scheduled to lecture to the society April 10 on "Origin of Large Salt Deposits, Including Those in Salt Domes."

Gulf Oil Corporation honors 10,000 employes

Ten thousand men and women who have completed 10 years or more of service with the Gulf Oil Corporation and affiliated companies are being congratulated by J. Frank Drake, president, who on behalf of W. L. Mellon, chairman, and the board of directors, extends greetings to all employes and particularly to workers employed from 10 to 38 years.

The veteran employes are receiving service awards at district gatherings currently being held in various sections of the country. The awards consist of a gold pin, set with diamonds signifying 10 years service and rubies for 5 additional years, and a service award certificate printed on parchment.

Praising the progressive companies in American business and industry who have recognized the need not only to give jobs, but steadier and more permanent jobs, Drake declared:

"They know that this kind of employment security is of priceless value to the worker, to his family and to the company of which he is a part.

"Forty percent of the entire Gulf organization has been continuously employed for 10 years or more—through one of the most difficult and uncertain decades in business history. Of the 10,000, 2,250 have been with the company for more than 20 years and more than 600 have been steadily employed with us for more than 25 years. Think of that in connection with a company and an industry that 25 years ago were comparatively small. We believe that you'll agree that it is an impressive record—a record that reflects credit not only on Gulf, but on the petroleum industry and all men and women identified with it.

"Even though we cannot show it on our books, the loyalty and devotion of our people are among our most valued assets and it is to recognize these qualities that the Gulf Service Award Plan has been adopted.

"A recent survey showed the national average term of employment in all industries in the United States to be approximately 3 years. Conservatively, the estimated average period of employment in the Gulf companies is about 7½ years. This, indeed, is an enviable record.

"So in presenting service awards to 10,000 men and women at this time, we want to do more than recognize the part they have played in the development of our company. We want also to express our sincere conviction that it is through employment records like these that American business and industry have made possible such a high degree of personal security for millions of individuals in these United States."

These Men Speak and Preside at A. P. I. Eastern District Meeting

Columbus, Ohio, April 11-12

DEWITT T. RING, vice president of The Preston Oil Company, Columbus, is chairman of the Eastern District of the American Petroleum Institute's Division of Production, and will preside at the opening session Thursday morning. He attended Ohio State University 1907-08, and was graduated from State University, Kent, Ohio, in 1911 with degree of Bachelor of Science. Did postgraduate work at University of Chicago 1912-15. Was associated with F. Julius Fohs and Humphries Corporation 1915-23. Consulting geologist at Tulsa and El Dorado 1924-27. In 1928, entered employ of Ohio Fuel Gas and Ohio Fuel Supply companies as geologist. In 1939, appointed vice president of The Preston Oil Company, which, as well as the Ohio Fuel, is subsidiary of Columbia Gas & Electric Company.

WILLIAM A. WATKINS, division superintendent, The Carter Oil Company, Mattoon, Illinois, will preside at the Friday afternoon session. He studied at the University of North Carolina, Colorado School of Mines and University of Oklahoma; graduating from the latter with degrees of B.S. and M.A. For two years was instructor in geology and did graduate work at Cornell University. Was engaged in geological exploration work in Venezuela for Standard Oil Company of Venezuela, and in Argentina and Chile for Standard Oil Company of Argentina, later becoming division superintendent of Standard Oil Company of Argentina.

M. G. GULLEY, assistant geologist of Gulf Oil Corporation, Pittsburgh, will preside at the Friday morning session. Gulley graduated from William Jewell College in 1920 with an A.B. degree.

J. J. SCHMIDT, of The East Ohio Gas Company, Cleveland, presides Thursday afternoon, April 11. Schmidt, educated at the University of Indiana, has been employed by The East Ohio Gas Company for 17 years. He has served as geologist, assistant field superintendent and general superintendent of the field department.

FRANKLIN T. REDMAN, research engineer for Hall Laboratories, Pittsburgh, Pennsylvania, collaborates with R. F. Mackie on a paper entitled "Water Treatment for Prevention of Scale and Corrosion in Connection with Water Flooding," to be read Thursday morning, April 11. Redman graduated from University of Pittsburgh in 1934 with the degree of B.S. in chemistry. Since that time he has been employed by Hall Laboratories, and has been engaged in research and development work on sodium hexametaphosphate as a means of combatting the precipitation of calcium sulphate, calcium carbonate and iron from flooding waters.

GUSTAV EGLOFF, director of research, Universal Oil Products Company, Chicago, will be heard Friday morning, April 12, on the subject of "Crude Oil and Its Competitive Fuels." Egloff graduated from Cornell University in 1912 with a B.A. degree; received an M.A. degree from Columbia University in 1913 and a Doctor of Philosophy from Columbia in 1916. Given honorary Doctor of Science by Brooklyn Institute of Technology in 1938. Employed by the U. S. Bureau of Mines, but resigned to become chief chemist of Aetna Chemical Company. Since 1917 has been director of research for Universal Oil Products Company. Author of over 400 articles and books on petroleum, has received 250 patents on various processing methods.

ALFRED H. BELL, geologist and head of Oil and Gas Division of Illinois State Geological Survey, Urbana, Illinois, speaks on "Geology and Development of the Illinois Basin Area," Friday afternoon, April 12. Bell graduated from the University of Toronto in 1917, and received the degree of Ph.D. from the University of Chicago in 1926. He served with the Canadian Overseas Expedition from 1917 to 1919. He was assistant in field parties of Canadian Geological Survey in 1914, and 1920-23 inclusive. From 1924-26, Bell served as geologist with The Texas Company's Kansas Division; and in July, 1926, joined the staff of the Illinois Geological Survey.

GEORGE W. MYERS, of Sun Oil Company, Toledo, speaks Friday morning, April 12, on "Interesting Developments in Michigan." Graduated in 1910 from Millersville (Pennsylvania) State Normal School, he was principal of Township High School 1910-11. In 1915, he was graduated from University of Pittsburgh with the degree of Engineer of Mines. From 1915 to 1917, he served as geologist for Standard Oil Company of New Jersey and Cities Service Company, and since 1917 has been geologist for Sun Oil Company.

J. A. FOX, of Foley & Fox Drilling Contractors, Washington, Pennsylvania, speaks on "Problems in Deep Cable Tool Drilling, Appalachian District," Friday morning, April 12. Since 1915 he has been drilling and contracting the drilling of oil and gas tests in the fields of Pennsylvania, West Virginia and Eastern Ohio.

ROGER C. HUTCHINGS, of the American Petroleum Institute, New York, speaks on "Conservation and Proration Without Allowables," Thursday morning, April 11. Hutchings was for many years with a subsidiary of the United States Steel Corporation in sales promotion activities, later in advertising and public relations work, and has recently joined the staff of the American Petroleum Institute's Public Relations Committee.

Markets embody weakness as well as strength

The industry's markets currently present a mixed picture, with refined products ranging from strong to unsteady and the crude market less steady than in the recent past, because of overproduction.

Kerosene and Diesel Oil

Kerosene currently is the strong product of the industry, supplies being unusually scarce as the heavy consuming season on farms proceeds. Some Mid-Continent refiners are completely "sold out" of kerosene and are in the market themselves for supplies to augment their own production in fulfilling contracts. The firmness of kerosene extends throughout the country east of California, and prices have been edging upward.

Also firm is the market for Diesel oil, which is closely similar to kerosene. Several sellers on the Atlantic coast last week advanced their quotations for Diesel oil 10 cents a barrel.

Fuel Oils and Lubes

Light fuel oils have been in diminishing demand as the heating season has waned, although prices have remained generally unchanged.

Bunker oil, however, continues firm, with supplies comparatively light, and prices are holding steady at the present improved levels.

Demand for lubricants has continued lighter than in recent months, and quotations have been lowered slightly further by refiners of Western Pennsylvania and of the Mid-Continent. The sharp improvement of the lube oil markets during the past fall and winter resulted in considerable part from the brisk export business, and foreign buyers lately have not been particularly active in the market, while domestic demand also has lagged somewhat, because of the slower tempo of industrial and business activity in the past few months. Industrial consumption represents a very material part of the demand for lubricants, and the lube oil markets consequently react sensitively to fluctuations in general business activity.

Gasoline Market

The gasoline market has continued to hold its former position in the face of the record-breaking gasoline stocks, prices late last week having been generally about the same as a week previously.

Some encouragement was given by the fact that additions to storage finally were practically stopped in the week ended March 30, only 72,000 barrels having gone into the tanks during the 7 days. The 101,370,000 barrels on hand at the end of the week may represent the high of the year, as additions in April are somewhat unusual.

However, the present inventory is approximtaely 20,000,000 barrels in excess of actually needed working stocks, and the trend of the gasoline market this spring and summer will depend greatly on the degree of success in working off the surplus. So far the excess is not weighing heavily on the market, but as the season advances and the period of diminishing consumption draws nearer, pressure on the gasoline market may be expected to increase.

Meanwhile, the gasoline situation is being aggravated by the current overproduction of crude oil, which naturally

PRODUCT PRICES

	Range Late Last Week (Cents a gal.)		Changes from Week Before	
REFINED GASOLINE				
Oklahoma Refineries:				
62 Octane and under	3¾	4⅛	...	...
63-66 Octane	4	4⅜	...	...
67-69 Octane	4¼	4¾	...	...
70-72 Octane	4½	5	...	...
Mid-Western Tank Car:				
62 Octane and under	3¾	4⅛	...	...
63-66 Octane	4	4⅛	...	...
67-69 Octane	4¼	4¾	...	...
70-72 Octane	4½	5	...	...
New York Harbor:				
70 Octane and under	6¼	6¾	...	...
72-74 Octane	6¼	7¼	...	...
NATURAL GASOLINE				
Grade 26-70:				
F.C.B. Group 3	1½	1½	...	...
F.O.B. Breckenridge, Texas	1¼	1¼	...	—¼
KEROSENE				
Oklahoma Refineries:				
41-43 water white	3⅞	4¼	...	...
42-44 water white	4	4⅜	...	...
Mid-Western Tank Car:				
41-43 water white	3⅞	4¼	...	...
42-44 water white	4	4⅜	...	...
New York Harbor:	6	6¼	...	...
RANGE OIL				
At Oklahoma Refineries	3⅝	3⅞	...	...
In Mid-Western Market, Group 3 basis	3¾	4	...	...
LIGHT FUEL OILS				
Oklahoma Refineries:				
No. 1 straw	3⅝	3¾	...	...
No. 3	3¼	3⅜	...	...
Mid-Western Tank Car:				
No. 1 straw	3½	3⅝	...	...
No. 3	3¼	3⅜	...	...
New York Harbor:				
No. 1	6	6¼	...	...
No. 3	5½	5⅝	...	...
HEAVY FUEL OILS (Per Barrel)				
Oklahoma Refineries:				
No. 6	50	50	...	...
Mid-Western Tank Car:				
No. 5	75	75	...	...
No. 6	45	55	...	...
New York Harbor:				
No. 5	$1.70	$1.85	...	...
No. 6	1.50	1.50	...	...
BUNKER C FUEL OIL (Per barrel, ships bunkers)				
Gulf Coast	$ .90	$1.00	...	...
New York Harbor	1.50	1.50	...	...
DIESEL OIL (Per barrel, ships bunkers)				
Gulf Coast	$1.70	$1.70	...	...
New York Harbor	2.20	2.35	...	...
LUBRICATING OIL				
Oklahoma Refineries:				
Bright stock, 150-160 viscosity at 210°, 10-25 pour test	20	24½	...	...
Neutral oil, pale, No. 3 color, 150 viscosity at 100°, 0-10 pour test	10½	13¾	...	...
Western Pennsylvania:				
Bright stock, 145-155 viscosity, at 210°, 25 pour test	23	24	...	—1
Neutral oil, No. 3 color, 150 viscosity, at 70°, 25 pour test	24	24	...	...

Trends of United States Production and Stocks

Figures are from American Petroleum Institute weekly reports, except those on crude stocks, which are from Bureau of Mines weekly reports

WEEK ENDED	Crude Oil Production (Barrels Daily)	Crude Runs to Stills (Barrels Daily)	Crude Oil Stocks (Barrels)	Gasoline Stocks (Barrels)	FUEL OIL STOCKS	
					Gas Oil & Dist. Fuels	Residual Fuel Oil
1937:						
August 28	[5]3,731,450	3,425,000	309,506,000	66,997,000	112,111,000	
eptember 25	3,666,300	[5]3,455,000	307,974,000	65,620,000	116,472,000	
1938:						
March 19	3,433,550	3,080,000	306,380,000	[5]93,192,000	122,067,000	
November 12	3,243,250	3,180,000	273,394,000	[6]67,551,000	34,175,000	120,491,000
December 10	3,245,100	3,150,000	[6]269,509,000	68,687,000	32,068,000	118,711,000
December 31	3,201,450	3,115,000	273,024,000	71,695,000	29,082,000	115,741,000
1939:						
January 28	3,248,250	3,235,000	271,763,000	77,279,000	26,583,000	112,766,000
February 25	3,328,850	3,185,000	271,758,000	84,597,000	23,419,000	110,252,000
March 25	3,382,350	3,225,000	273,915,000	87,561,000	21,487,000	107,551,000
April 22	3,526,700	3,280,000	277,156,000	[2]87,769,000	21,085,000	105,035,000
April 29	3,568,200	3,405,000	278,440,000	86,794,000	[7]25,844,000	[7]108,409,000
May 6	3,580,900	3,275,000	[2]278,607,000	86,216,000	26,167,000	108,597,000
May 27	3,585,250	3,405,000	278,289,000	84,152,000	26,992,000	109,386,000
June 24	3,452,800	3,430,000	272,297,000	81,733,000	30,239,000	111,726,000
July 29	3,539,100	3,460,000	268,513,000	77,887,000	34,900,000	114,053,000
August 5	[1]3,909,400	3,445,000	268,982,000	76,431,000	35,601,000	114,512,000
August 26	[2]1,690,800	3,475,000	246,982,000	73,475,000	37,722,000	116,237,000
September 30	3,658,200	3,560,000	233,023,000	71,168,000	38,081,000	115,466,000
October 7	3,435,850	3,505,000	231,564,000	[6]71,152,000	38,549,000	114,397,000
October 21	3,771,550	[1]3,650,000	[2]229,127,000	72,122,000	39,358,000	115,060,000
October 28	3,498,500	3,520,000	230,453,000	72,660,000	39,562,000	114,786,000
November 25	3,818,100	3,510,000	231,811,000	75,595,000	38,527,000	112,106,000
December 30	3,545,000	3,445,000	237,742,000	80,985,000	34,184,000	106,680,000
1940:						
January 27	3,611,600	3,470,000	237,339,000	87,914,000	27,407,000	103,015,000
February 3	3,498,800	3,395,000	239,380,000	89,337,000	26,861,000	102,536,000
February 10	3,688,100	3,460,000	239,510,000	91,649,000	26,007,000	102,344,000
February 17	3,717,950	3,570,000	238,928,000	93,985,000	25,876,000	103,424,000
February 24	3,732,100	3,490,000	240,836,000	96,719,000	25,390,000	103,419,000
March 2	3,798,250	3,445,000	244,126,000	98,364,000	25,015,000	103,521,000
March 9	3,828,550	3,450,000	245,762,000	99,397,000	24,560,000	103,825,000
March 16	3,890,050	3,500,000	246,762,000	100,616,000	24,075,000	103,588,000
March 23	3,871,450	3,560,000	247,401,000	101,298,000	23,275,000	102,798,000
March 30, 1940	3,841,250	3,585,000	.....	[1]101,370,000	23,278,000	103,081,000
April 1, 1939	3,358,200	[3]3,191,000	[4]273,915,000	87,068,000	25,990,000	109,028,000
Change in past year	+14.3%	+12.3%	—9.7%	+16.3%	—10.4%	—5.5%

[1] All time peak. [2] Peak for 1939. [3] Lowest since April, 1922. [4] Stocks, March 25, 1939. [5] Peak prior to 1939. [6] Lowest for year. [7] Prior to April 29, 1939, data did not include stocks at terminals, in transit, etc., except in California. [8] March, 1939, daily average. [9] Lowest since October 1922, due to the shutdown of six Mid-Continent states.

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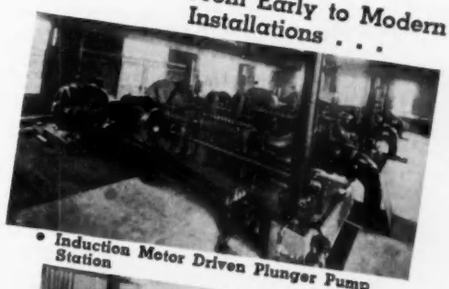
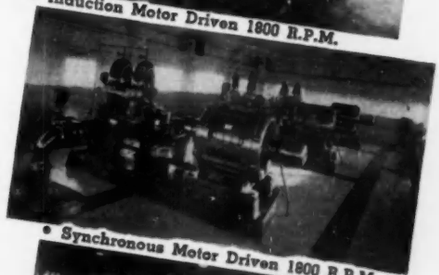


• Induction Motor Driven Plunger Pump Station

• Induction Motor Driven 1800 R.P.M.



• Synchronous Motor Driven 1800 R.P.M.

• 2-Way or Double Pipe Line Induction Motor Driven 3600 R.P.M.

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tends to force excessive crude runs to stills and output of more gasoline than should be made.

Although prices of gasoline have remained unchanged, the large inventories are reflected in the markets. In most districts supplies are relatively large and inquiries are limited. While demand is good, most of the material that is moving is doing so under contracts. The current prices apparently are being maintained largely through the determination of refiners not to sell their gasoline below costs of making it.

Natural gasoline continues to go at extremely low prices, being sold for 1½ cents a gallon at Oklahoma-Kansas refineries and for 1¼ cents in North Texas.

Crude Markets Unsteady

The crude oil market has become increasingly unsteady following the promulgation of April allowables, as crude output materially in excess of market demand has been authorized again, as in March. One major purchaser has sharply reduced takings in Kansas, West Texas, New Mexico, North Texas and other areas, and also has discontinued taking on new well connections.

Considerable crude is reported to be selling for less than posted prices in the Mid-Continent as well as in Illinois.

Crude oil stocks have been steadily increasing since mid-February, and a further large addition is in prospect for April.

Spacing for La Vernia field

An order issued by the Texas Railroad Commission last week provides that wells drilled in the La Vernia field, Guadalupe County, may be spaced 200 feet from lease lines and 400 feet apart.

High operations cause additions to stocks

The industry continues to operate wells and refineries at comparatively high rates, and inventories of both crude and refined oils are increasing.

In the week ended March 30, crude oil production was reduced 30,000 barrels a day, but runs to stills were stepped up 25,000 barrels daily. The plant output was more than the markets could absorb, and fuel oils as well as gasoline were forced into storage.

The stocks of gasoline increased only a little, as demand was comparatively large. Inventories of light fuel oils were increased slightly, and those of heavy fuel oils nominally.

Despite the large runs to refinery stills, crude oil again accumulated in storage, the stocks having risen from 246,762,000 to 247,401,000 barrels in the week ended March 23, latest period for which figures are available.

Production and Runs

United States crude oil production averaged 3,841,250 barrels daily in the final week of March, according to the American Petroleum Institute, or about 340,000 barrels a day more than indicated average daily market demand for the month. The output was 14.3 percent greater than that in the corresponding week last year.

Crude runs to stills were increased to 3,585,000 barrels daily and were then 12.3 percent larger than the average of 3,191,000 barrels daily for March of last year.

Production of gasoline was increased from 11,452,000 barrels in the previous week to 11,570,000 barrels in the 7 days ended March 30, and compared with 10,655,000 barrels weekly in March of last year.

Stocks of gasoline rose to another new all-time peak of 101,370,000 barrels in the week ended March 30, from 101,298,000 barrels a week earlier, the rate of accumulation having been reduced materially further, and the high point of the year apparently having been approached. The inventory now is 16.3 percent higher than a year ago, the storage on April 1 last year having totaled 87,068,000 barrels.

Fuel Oil Stocks

Withdrawals from stocks of heating oils finally have ceased, 3000 barrels having been added to storage in the week of March 30. The inventory of gas oil and distillate fuel now is 10.4 percent lower than a year ago, and unless refiners deliberately build up stocks more than usually this spring and summer, scarcity is to be expected next fall and winter, comparable with or more acute than that of the past season of heavy consumption.

The inventory of residual fuel oil was increased nearly 300,000 barrels in the week ended March 30, as output exceeded the somewhat lagging demand. Stocks of 103,081,000 barrels now are 5.5 percent smaller, however, than those held a year ago.

Toborg 2-acre spacing ordered

Two-acre spacing for wells in the Toborg field, Pecos County, is provided in a new Texas Railroad Commission order. Wells may be spaced 150 feet from lease lines and 300 feet apart.

United States Crude Oil Production

Estimates Compiled by THE OIL WEEKLY

DISTRICT OR STATE	Bureau of Mines Estimate of Daily Demand (April)	State Allowable in April	BARRELS DAILY FOR WEEK ENDED April 6	BARRELS DAILY FOR WEEK ENDED Mar. 30
TEXAS—				
Texas Panhandle	.....	.....	70,650	78,400
North Texas	.....	.....	95,500	106,500
West Central Texas	.....	.....	30,200	33,350
West Texas	.....	.....	248,500	275,950
East Central Texas	.....	.....	82,000	90,850
East Texas Field	.....	.....	398,100	397,950
South Texas	.....	.....	245,200	267,950
Texas Gulf Coast	.....	.....	229,900	256,200
Total Texas	1,332,000	1,514,433*	1,400,050	1,507,150
CALIFORNIA—				
Long Beach	.....	.....	45,000	43,400
Midway-Sunset	.....	.....	56,500	44,000
Kettleman Hills	.....	.....	51,100	49,350
Wilmington	.....	.....	83,400	82,950
Others	.....	.....	361,400	373,200
Total California	590,000	592,000†	597,400	592,900
OKLAHOMA—				
Oklahoma City	.....	.....	102,500	89,450
Seminole Area	.....	.....	106,000	93,500
Others	.....	.....	212,275	230,175
Total Oklahoma	413,000	413,000†	420,775	413,125
ILLINOIS—				
Salem	.....	.....	258,500	264,500
Louden	.....	.....	77,200	74,800
Other New Pools	.....	.....	83,700	78,650
Old Pools	.....	.....	9,000	8,300
Total Illinois	380,000	.....	428,400	426,250

DISTRICT OR STATE	Bureau of Mines Estimate of Daily Demand (April)	State Allowable in April	BARRELS DAILY FOR WEEK ENDED April 6	BARRELS DAILY FOR WEEK ENDED Mar. 30
LOUISIANA—				
North Louisiana	.....	60,883	67,250	68,150
South Louisiana	.....	223,250	221,300	217,900
Total Louisiana	257,000	284,133	288,550	286,050
KANSAS	151,000	151,000	175,350	180,400
NEW MEXICO	100,000	114,000	114,700	114,500
EASTERN STATES—				
Pennsylvania Grade	.....	.....	73,400	73,200
Others, Eastern	.....	.....	23,700	23,500
Total Eastern States	101,500	.....	97,100	96,700
MOUNTAIN STATES—				
Wyoming	60,600	.....	72,250	71,000
Montana	15,200	.....	16,800	17,000
Colorado	3,500	.....	3,950	4,000
Total Mountain States	89,300	.....	93,000	92,000
MICHIGAN	63,000	62,000	63,050	64,750
ARKANSAS	64,500	70,000	70,550	70,250
MISSISSIPPI	3,900	.....	8,100	7,800
INDIANA	7,800	.....	8,800	9,800
‡Total 8 Prorated States	2,970,500	3,219,566	3,130,425	3,227,475
Total United States	3,500,600	.....	3,765,825	3,860,025

* Daily average, considering general shutdown April 1, and 11 other days shutdown in the East Texas Field.
† Recommendation of Central Committee of California Producers.
‡ Texas, California, Oklahoma, Kansas, New Mexico, Michigan, Arkansas, Louisiana.

U. S. FIELD OPERATIONS

Illinois

Coles County wildcat has small show in St. Peter

Centralia, Ill.—Most significant development in Illinois' oil week was recovery of a light show of oil in the St. Peter sand at a Coles County wildcat, The Carter Oil Company's James H. Seaman 1, NW NE SW 35-12n-7e, 2 miles south of Mattoon, at 4691-95 feet.

Fifteenth to reach the formation in the state's oil history, the test was drilling below 4750 feet. It is the first to recover any showing in the St. Peter, a horizon comparable to the Wilcox of Oklahoma, and it was on possibilities of this formation that many major company lease were written in 1935 and 1936, prior to the discovery of shallow production. The St. Peter has never been explored in a new Illinois field where there is shallow production.

Seaman 1 topped the formation at 4689 feet and the 4-foot core showed a tightly cemented hard sand with a live show of oil. Seaman 1 topped the Glen Dean at 1654 feet. Cypress at 1755 feet, Weiler at 1760 feet, Aux Vases at 1966 feet, Salem at 2221 feet, Carper at 3018 feet, Devonian at 3170 feet, Silurian at 3240 feet, and Trenton at 4061 feet, recovering several small shows in the Devonian and higher formations. Elevation is 750 feet.

In Edwards County, a two-pay pool was indicated when Thurman Hill's Harry Wick 1, C NE SE NE 24-2s-10e, showed 1000 feet of oil on a 20-minute drill-stem test from Waltersburg sand at 2373 feet. Total depth is 2387 feet. Casing has been cemented. The well is near Noah & Morrison's Barnes 1, completed as a 250-barrel McClosky well to open a new field 2 miles south of Albion. The other test in the immediate area, Superior Oil Company's Wood 1, NW SW NW 9-2s-11e, was drilling at 2670 feet and will test the McClosky.

Benoist in White County

In White County, the first Benoist (Bethel) sand well in the southeast part of the Basin was nearing completion after swabbing 150 barrels in 24 hours. It is W. F. Fortner's C. P. Calvin 1, NE NE SW 9-4s-14w, with pay at 2706-23 feet.

In the Centralia field of Clinton and Marion counties, the week was marred by the worst disaster in the history of the state's oil development, a gas explosion at a townsite oil well in which a drilling crew of six was fatally burned and a house destroyed. The accident has caused state authorities to investigate drilling and producing practices in the field and orders have already been issued to move tanks and flares near a grade schol.

One of the pool's best completions during the week was G. H. Blankenship's Conrad-Roth 1, SE 12-1n-1w, which flowed 640 barrels natural, and then made 213⅓ barrels in three hours following a 3000-gallon acid treatment in Devonian pay at 2902-23 feet. Rumors of an early Trenton test in the field persisted, but no location has been announced.

Devonian development in the Lake Centralia-Salem field of Marion County was moved westward with near completion of I. D. Lain's Dempsey 11, NE NE SW 31-2n-2e, which had pay at 3347-63 feet. Plug has been drilled, and the well was to go on production immediately. Two east outposts were also nearing completion: Wiser Oil Company's Weems 13 and 14, NW NW 33-2n-2e, which had pay at 3444-60 feet and 3465-75 feet, respectively. Both were on production.

Carter Oil Company, principal operator in the Louden field of Fayette County, indicated an increase in its drilling program was to begin soon. According to a company representative, it is expected that Carter's 860 wells in the county will be increased to 1000 by fall.

In Jefferson County Magnolia Petroleum Company's Lettie Jones 1, a wildcat in NE 10-3s-2e, was drilling below 2900 feet. It topped Glen Dean at 2095, Hardinsburg at 2137 feet, Gonconda at 2192 feet, Cypress at 2323 feet, Stein at 2353 feet, Benoist at 2496 feet, and Aux Vases at 2566 feet.

Kingwood Oil Company's Devonian test in White County, Paul Martin 1, NW SW NE 13-7s-8e, was drilling at 4401 feet, after finding Cypress at 2574 feet, Aux Vases at 2835 feet, and Fredonia at 2902 feet.

Indiana

New Gibson County strike believed in St. Louis lime

Evansville, Ind.—Al Braden's George Simpson 1, SE NE 19-3s-11w, south of Owensville in Gibson County, was rated a 120-barrel pumper after 1000 gallons of acid to open a new pool. It is believed first production from the St. Louis lime east of the Wabash River.

C. R. Obermeyer's Frank Kleiderer 1, SE SE 28-3s-14w, ½ mile west of production at Griffin, Gibson County, topped Aux Vases at 2774 feet, and core at 2776-88 feet showed 10 feet of saturation. It was waiting on cement. Bates & Lichlyter, Evansville, are contractors.

Two miles west of Princeton, Gibson County, in the Pennsylvania-sand-producing West Princeton field, Al Braden located C. Knight 1, NE NW SW 2-2s-11w, as a McClosky test.

Six miles east of the Siosi Devonian field, Forrest Oil Corporation's J. R. Riggs 1, Curry Township, Sullivan County, NE SW 33-9n-9w, was drilling at 1250 feet in a dry Mississippi lime, headed for the Devonian.

In Spencer County, southwest of St. Meinrad, Ohio Oil Company's Philomena Holtzman 1, SE SE 28-4s-4w, topped Devonian at 2171 feet, and a bleeding core showed non-commercial saturation at 2237½-42½ feet. It is shut down for orders at 2360 feet. General Geophysic Company, Denver, Colorado, is contractor.

Gulf Refining Company has made location for the first rotary test in the Rockport field, Spencer County. Federal Land Bank 1, NW NW 32-7s-6w, is an east offset to O. L. Sturbois' Boyd 1, discovery. An outpost 2 miles west of Boyd 1, Damron Brothers' W. S. Frank 1, NE SE 35-7s-7w, got a non-commercial show in the Palestine sand and was deepening.

In the Richland area of Spencer County, George Mogan et al were spudding William Sims 1, wildcat in SW SE 22-6s-7w.

Kentucky

Two Todd County wildcats highlight new starts

Owensboro, Ky.—Lingerson & Moss' Simon 1, wildcat, spudded 4 miles west of Sharon Grove, Todd County. Ed Noah and Myers' Harris 1, 4 miles northwest of Sharon Grove, was a new location.

Jack Redd et al's Moley 1, St. Peter test near the old Gainesville pool, Allen County, was drilling below 4700 feet.

Sun Oil Company's George Trigg 3, in the Corydon section of Henderson County, set casing for test of the McClosky lime.

Forest City Basin

Iowa test is abandoned after drilling through Arbuckle

St. Joseph.—Iowa saw its only test abandoned after the Arbuckle lime revealed no show of oil or gas. Phillips Petroleum Company's Creston 1, C SE NE 31-71n-30w, near the city of Creston, was a failure at 2860 feet in lime. A log disclosed the following formations: Mississippi lime at 1177 feet, Kinderhook Dolomite at 1506 feet, Hunton lime at 1595 feet, Mazuoketa at 2298 feet, Viola at 2346 feet, Decorah shale at 2723 feet, Plattsville lime at 2728 feet, St. Peter at 2759 feet, and Arbuckle at 2789 feet. Eight-inch pipe was set at 2368 feet. Water continually entered the hole below the Hunton formation.

Pawnee Royalty Company was preparing to deepen Boice 1, CSL N½ NE NE 18-1n-16e, Richardson County discovery which made oil from the Hunton lime, to test Viola and possibly the Arbuckle. From 2292 feet, the well last pumped and flowed 78 barrels of

oil and 403 barrels of water daily. Operators were testing a cement shutoff in the Hunton before proceeding.

T. E. Baldwin abandoned Johnson 1-A, NW NE NE 21-65n-15w, Schuyler County, Missouri. Lawhon et al's Gottschall 1, C SE SE 18-59n-32w, was drilling below 250 feet.

With weather clearing up, Stephens & Uhri were moving in a machine to deepen Stauffer 1, SWc NE 22-1n-13e, previously stopped at 550 feet. Uhri & Higgins et al's Ogla 1-A, NE NW SE SE 9-1n-14e, were starting up after moving rotary tools to location. Both wildcats are in Nebraska.

Oklahoma

Lincoln County Hunton lime strike flows 300 barrels

Tulsa.—Portable Drilling Company's Teter 1, NWc SW 24-17n-2e, 6 miles east of Coyle pool, Lincoln County, opened a new Hunton lime pool, flowing and spraying over 300 barrels of oil with 15,000,000 to 20,000,000 cubic feet of gas. Drilled to 4779 feet in the Wilcox by George Travis and abandoned on February 28, Portable Drilling Company plugged back to 4736 feet and perforated with 25 shots at 4500-10 feet in lime topped at 4490 feet. Electric log showed oil and gas at 4490-4520 feet, but operators failed to test this horizon, believing it non-commercial.

Sinclair Prairie Oil Company's German 1, SW NW NW 1-6n-13w, 6 miles southeast of Carnegie, Caddo County, attempted to blow out at 10,717 feet in the Oil Creek formation, topped at about 10,100 feet. Some oil and gas-cut mud came up between the surface casing and drill pipe, but whether the gas was from the Wilcox zone or Oil Creek is yet undetermined. Upper Wilcox had a good oil show, but was tight. A core taken at 10,717-730 feet recovered 5 feet of gray lime with slight staining. The test was deepening toward the Joins series, usually the last 150 feet of the Simpson, expected shortly. On the northwest flank of the Wichita mountains and flanking the deep Anadarko Basin, this wildcat is seeking production on the upthrow side of a faulted block. The company controls 1700 acres surrounding the site, with The Texas Company, Indian Territory Illuminating Oil Company, Gulf Oil Corporation and Amerada Petroleum Corporation holding adjoining acreage.

Pure Oil Company quit drilling at 5640 feet, in basal McLish sand, and set 7-inch pipe at 4857 feet to test Little 1, C W½ NE SE 28-5s-7e, Cumberland discovery in Marshall County. Three 1000-barrel tanks have been erected. A drill-stem test at 4961 feet in Upper Tulip Creek sand showed for 70 barrels of 38-gravity oil in 14 minutes. Later, a second drill-stem test at 5103 feet showed 30 barrels hourly with 3,000,000 cubic feet of gas. Salt water penetrated the base of the McLish and operators decided against drilling to Arbuckle. A tentative location for the second Pure Oil Company test is College 1, C SE SE 27-5s-7e, across the Washita River in Bryan County.

Helmerich & Payne's McMahon 1, SWc SE 31-17n-1e, discovery in Logan County, averaged 62 barrels of 43.2-gravity oil and 10 barrels of water for 4 days with 100,000 cubic feet of gas and was completed. The Dolomite section of the Simpson was acidized with 3000 gallons. Pay was logged at 5235-65 feet and shut-in pressure was 1300 pounds.

A ¼-mile northwest extension was indicated for Coyle pool, Payne County. The Texas Company's Burroughs 1, C E½ NE NW 11-17n-1e, drilled into Wilcox sand at 4927 feet with a 3200-barrel water load. On penetrating to 4938 feet the test flowed 28 barrels of oil in an undetermined time. It will be deepened before testing. Helmerich & Payne's Kramer 1, NWc SW 24-17n-1e, south of Coyle pool, Logan County, perforated at 4731 feet in Hunton lime, topped at 4713 feet, and 900 feet of salt water entered the hole. It will be bailed down for additional perforations.

Jones pool, Oklahoma County, had its second producer at J. E. Trigg and Hall-Briscoe, Inc.'s Hughes 1, NEc SW 28-13n-1e, which filled 2000 feet with oil in 30 minutes. Cleveland sand was logged at 4821-34 feet and casing cemented at 4820 feet. It is a southwest diagonal offset to the discovery.

Malarnee Oil Company's Harris 1, C SW NE 14-25-1e, northwest flank of Ponca City pool, which previously showed for 40 barrels in Prue sand at 3760-87 feet, drilled into Chat at 3963-4003 feet where 500 feet of crude was swabbed down. Pay will be shot and tested after deepening.

Summit Drilling Company et al's Cleer 1, C W½ SE SW 6-15n-5e, strike 6 miles northwest of Davenport pool, Lincoln County, flowed 313 barrels of oil and 32 barrels of water in 9 hours. Shell Pipe Line Company has started construction of an extension line to service the new area.

Oklahoma's two largest oil discoveries of 1939 have been defined by dry holes. Simpson-Roodhouse Drilling Company's James 4, NEc SE 9-5n-3e, on the northeast edge of Byars pool, McClain County, was abandoned at 4005 feet in the Wilcox sand. Viola lime was structuraly low, and an electric log revealed no shows. Hobart pool of Kiowa County was defined ¼ mile to the northwest at Sinclair Prairie Oil Company's Watkins 1, SE NE NW 18-7n-17w, which had salt water at 1375-77 feet in lime and was drilling below 1435 feet with 1000 feet of water in the hole. Gled Oil Company et al's Watkins 2, NW SW NW 20-7n-17w, a northwest offset to the Hobart discovery, gauged 6,000,000 cubic feet of gas at 1066 feet in lime. The flow will be shut off and drilling resumed.

Kerlyn Oil Company found a new zone in the prolific St. Louis pool of Pottawatomie County. Askew 1, NW NE NE 17-7n-5e, flowed 78 barrels of oil in 24 hours by heads, cutting 3 percent water. Earlsboro was topped at 3125 feet and plugged at 3410 feet. Ten perforations at 3298-3303 feet, and 20 at 3329-34 feet started the flow. The well, previously drilled to 2852 feet, was carried through the Wilcox sand to 4357 feet but failed to show in this horizon. It is on the southeast end of the field.

On the west edge of Shawnee pool, Pottawatomie County, Gaskill Oil Company's Lee 1, NE SW NW 5-10n-4e, flowed and sprayed oil and gas from Earlsboro sand at 4445 feet.

Patsy Oil Company's James 2, NEc SW 16-5n-3e, Byars pool, flowed 1500 barrels of oil in 12 hours after acidizing with 2000 gallons. Viola lime was topped at 3450 feet, Trenton lime at 3529 feet and hole bottomed at 3600 feet. On the southwest edge of Bebee pool, W. B. Pine's Randall 2, NE SE NW 35-5n-4e.

Kansas

Wildcat between Harzman and Kraft pools showing well

Wichita.—Between Harzman and Kraft pools, Barton County, George Hinkle cored saturated Arbuckle lime at Kroutwurst 1-A, C N½ NE SE 34-16-11w. Pipe was cemented at 3394 feet, top of the lime which was drilled to 3400 feet. Jim McMorrow and McPherson Drilling Company located Tonkin 1, SWc 4-20-12w, a wildcat 3½ miles west of Ellinwood West pool.

Phillips Petroleum Company completed Wondra 1, C W½ SW NE 15-17-12w, discovery for the Wondra pool of Barton County, for 101 barrels of 38-gravity oil in 24 hours, including 4 percent acid water. Lansing lime at 3049-54 feet was acidized with 1500 gallons. Lauck & Moncrief et al's Ehler 1, CW1 SW NW 35-16-10w, wildcat strike between Stoltenberg and Stratman pools, Ellsworth County, plugged back to 3312 feet in Arbuckle lime and a pumping potential of 911 barrels of 44.8-gravity oil and 10 percent water was established. Pryor & Lockhart et al's Stratman 1, C W½ NW NW, ¾-mile northwest of Stratman pool and diagonal 1 mile southeast of the Ehler discovery, was a new location.

Two miles northeast of Pixlee pool, Greenwood County, C. L. Sheedy et al's Hook 1, NW SW NW 4-22-10e, set pipe at 2344 feet, where the wildcat tested 1 pint of oil per hour from Mississippi lime. Acid may make this test a commercial producer. Coopers et al's Sowder 1, SEc NW 31-25-14e, on the Quincy pool trend, has machine on location. Youker et al have rigged up Esslick 1, NE NW SW 7-27-11e, near the Willard oil area of Greenwood County. Rex & Morris are starting Lane 1, SWc NW 21-26-7e, west of the Young pool, Butler County.

Extensions

Pool extensions continued unabated throughout the state. William Coppinger's Whelan 1, C W½ SW NW 29-31-11w, ½ mile northeast of Whelan pool, Barber County, was completed for 805 barrels per day. It was drilled to 4385

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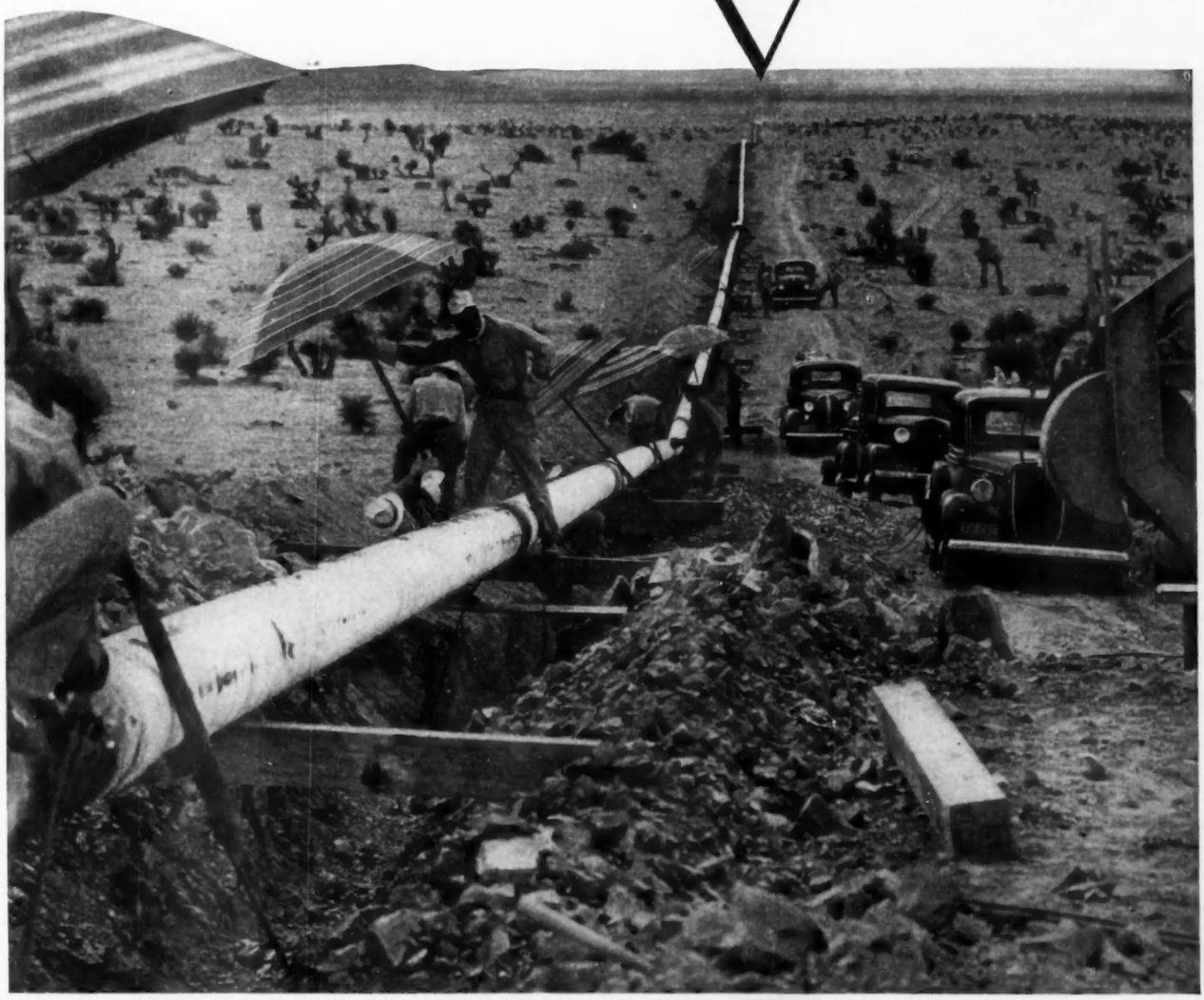

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feet in Mississippi lime. Bob Youker's McNicol 1, NWc 3-17n-4e, ½ mile north of Lost Springs pool, Marion County, filled 2400 feet with oil from the Chat horizon. North ¼ mile of Orth East pool, Rice County, Vickers Petroleum Company's Behnke 1, CWL NW NW 25-18-10w, made an official potential of 210 barrels daily. Arbuckle lime at 3259 feet was treated with acid.

Harbar Drilling Company et al extended Bemis-Shutts pool, Ellis County, ¼ mile southwest. Shutts 1, C N½ NW NE 32-11-17w, was testing with 500 feet of oil in the hole. Arbuckle lime was penetrated to 3631 feet and plugged back to 3626 feet, having been picked up at about 3600 feet. Champlin Refining Company moved South Snider pool, Stafford County, ¼ mile northeast. Smith 1, CEL SE NE 17-21-11w, tested 51 barrels natural in 24 hours. Saturation was previously cored to 3421 feet in Simpson sand.

North Texas

K-M-A deep test has showing in Ellenberger zone

Wichita Falls.—Oil production from the Ordovician horizon under the K-M-A field appeared probable last week. Other events of importance in North Texas involved the discovery of a new lime pool in Baylor County; the passing up of oil saturation by a projected Ordovician wildcat in Wilbarger County; the return of the pipe-line proration to 3 active Strawn pay fields; and the continuation of big-scale leasing in the Fort Worth syncline.

Search for deeper production under the K-M-A field brought forth results when Fain-McGaha Oil Corporation's Eph Griffin 16-B, situated in the southwest portion of the Strawn pay areas and in W. H. Spillers Survey, A-257, yielded 650 feet of oil in 20 minutes when formation tester was used at 4352-4489 feet in Ellenberger, topped at 4315 feet. Seven-inch pipe is cemented near the 4350-foot level to try for a completion. Top of K-M-A lime marker was placed at 3688 feet, indicating a high structural position for the area. Fifteen or more Ellenberger failures have been drilled within or adjacent to the field, and comparatively few offered any oil or gas showings.

W. B. Omohundro and E. C. Harlin, Jr.'s Kempner 1, Wichita County wildcat and 3 miles southwest of Wichita Falls, logged nominal oil saturation at 5536-67 feet, and halted at 5615 feet to circulate and catch sample of cuttings. It is believed to be in the Ellenberger series.

Amerada Petroleum Corporation's Goodpasture 1, northwestern Wilbarger County wildcat that is due to drill to the Ordovician, passed up oil saturation in lime at 3230-52 feet, and was drilling at 3550 feet. It is on a geophysical prospect that served as the basis for steep lease and royalty prices last fall. O. M. Stidham & Son's Watts 1, C NE SW H&TC Section 64, Block 15, situated 2 miles to the northeast, has been contracted to 5500 feet.

Baylor County Strike

Eastern Baylor County gained a new oil pool from the lower Canyon lime March 30 through the drilling of an offset to a deep failure that indicated the presence of the new pay zone. Hall-Jordan Oil Company and W. B. Omohundro's F. C. Green 1, Section 8, J. E. Hix Survey, A-1376, 3 miles east of Rendham, swabbed 30 barrels of pipe-line oil hourly after using 3000 gallons of acid in saturated pay at 3061-64 feet, and on later gauge swabbed and flowed 184 barrels in 6 hours.

The discovery is on acreage farmed out by British-American Oil Producing Company. The presence of an oil pool was indicated last May when the later concern's Green 1-L, a northwest offset to the discovery, swabbed 30 barrels of oil and 400 barrels of salt water in 24 hours after acidizing through casing perforations at 3060-80 feet, where saturation was passed up in drilling to 4304 feet. The original test was abandoned because of the volume of water. The new strike is 3⅓ miles southeast of the Seymour 2550-foot pool uncovered in December, 1938, by the British-American Oil Producing Company, which has completed 16 pumpers and 4 failures on its 16,000-acre block. Oil from the Seymour pool carries sulphur, and is handled by Shell Pipe Line Corporation's West Texas-Mid-Continent carrier. P. B. Scott et al have made location for Farr 1, C NE NE Section 228, being on a strike between the two lime areas and on acreage farmed out by British-American Oil Producing Company.

Lease trading continues at a brisk rate along a southeast trend from Clay and Montague counties toward Fort Worth, but buying is being done mostly by majors that can afford to carry large blocks at prices ranging from $1 to $3 cash per acre.

Two Archer Failures

Archer County recorded 2 Bend lime failures, although Hedrick Oil Company et al's Wilson-McCrory 1, SWc Lot 2, Section 94, 2½ miles south by east of the Mankins deep pool, logged sufficient oil saturation in the Strawn and Bend to warrant more prospecting in the area. Top of Bend was called at 4790 feet, and formation tester used at 4810 feet yielded salt water. Deep Rock Oil Corporation's McCarty 1, 6 miles east by north of Megargel, offered no encouragement for deep production in drilling to 5326 feet, having logged top of Smithwick shale at 4795 feet and top of Bend at 4862 feet. Walter H. Gant et al's Vogtsberger 1, near a 5159-foot failure in northeast corner of Archer County, logged trace of oil in sand at 3610-15 feet, and was drilling in shale at 3910 feet.

Bridwell Oil Company's Halsell 3-A, ¾ mile northwest outpost for the Halsell deep lime area, western Clay County, gave assurance of becoming the fourth oil well for the lower Strawn pool after showing mostly water on initial test. The saturated zone at 4736-71 feet tested 15 percent oil and the balance salt water on swabbing test through tubing. The well flowed oil by heads through casing when tubing was removed, and later made a head of 125 barrels of high-gravity oil when bailer was started in hole to determine the water level. The hole will likely be plugged back. A 5500-foot wildcat is to be started by May 1 on geophysical high, centering 2½ miles south by east of the Halsell production, by Pete N. Wiggins, Jr., and H. M. Horton. They paid $10 per acre cash and an additional bonus of $25 per acre out of oil for lease on the Polly Chowning 240 acres and 1000 acres of the W. I. Howard ranch. Location will be on the latter tract and in northeast corner of Block 42, T. J. Belcher Subdivision.

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West Texas

Central Jones County wildcat flows by heads from Cook sand

Abilene.—Thos. D. Humphrey et al's Triplett 1, south central Jones County, opened a new oil pool in flowing by heads natural from Cook sand at 2185-86 feet. The production was lubricated off without establishing a daily flow estimate in order to lower pipe to the top of the pay. It is in the J. J. Hughes Survey No. 201, near the north bank of the river and two miles northwest of the Hawley pool. F. W. Merrick Inc.'s Triplett 1, nearby 2628-foot failure, logged oil show in sand at 2196-2205 feet.

Completion gauge given Continental Oil Company et al's J. S. Todd 2-B, recent Basal Pennsylvanian discovery in Crockett County, recorded a natural flow of 840 barrels of 40.6-gravity oil through 11/16-inch choke in 12½ hours, with gas volume rated at 1,000,000 feet daily. Working pressure on tubing was 120 pounds and closed casing pressure was 200 pounds. Production is from saturation at 5615-90 feet, with the well bottomed in Simpson shale at 5691½ feet. Negotiations are pending for the laying of a pipe-line extension into the area. An east offset has been spudded by the owners of the 4480-acre united block that supports the discovery well. Pete N. Wiggins, Jr., Amerada Petroleum Corporation and associates own lease on a solid block of 15,000 acres situated immediately west and north of the section bearing the deep producer. An early meeting of owners is to be held for the purpose of outlining a development program.

The thickest section of Basal Permian and Ordovician formation encountered in the district is being established by Humble Oil & Refining Company's Young 1, northern Pecos County wildcat. This test was drilling at 6505 feet in lime and shale, identified as the Simpson series, topped at 5624 feet. A district record was scored in logging 439 feet of detrital formation, entered at 5185 feet. The company's White-Baker 1, an early Ordovician failure for Pecos County, charted 1345 feet of Simpson. Gulf Oil Corporation's Wristen 5, first Ward County Ordovician project, showed a small volume of gas and live oil when formation tester was used in broken saturation at 6248-6369 feet. It was drilling at 6410 feet in hard lime.

Atlantic Refining Company's University-Wickett 1, C SW NE Section 12, Block 16, is a north Ward County wildcat that is to explore a lime high situated west of production. It is on a strike to the south of the reef type of structure proved for gas production late last year on the Sealy ranch by Magnolia Petroleum Company. The latter's Sealy 4-43, near SWc SE Section 43, Block F, nearly ½-mile southwest of the highest of the 2 gassers, abandoned in sulphur water at 2904-35 feet, having logged top of Yates at 2624 feet and top of lime at 2515 feet with an elevation of 2654 feet.

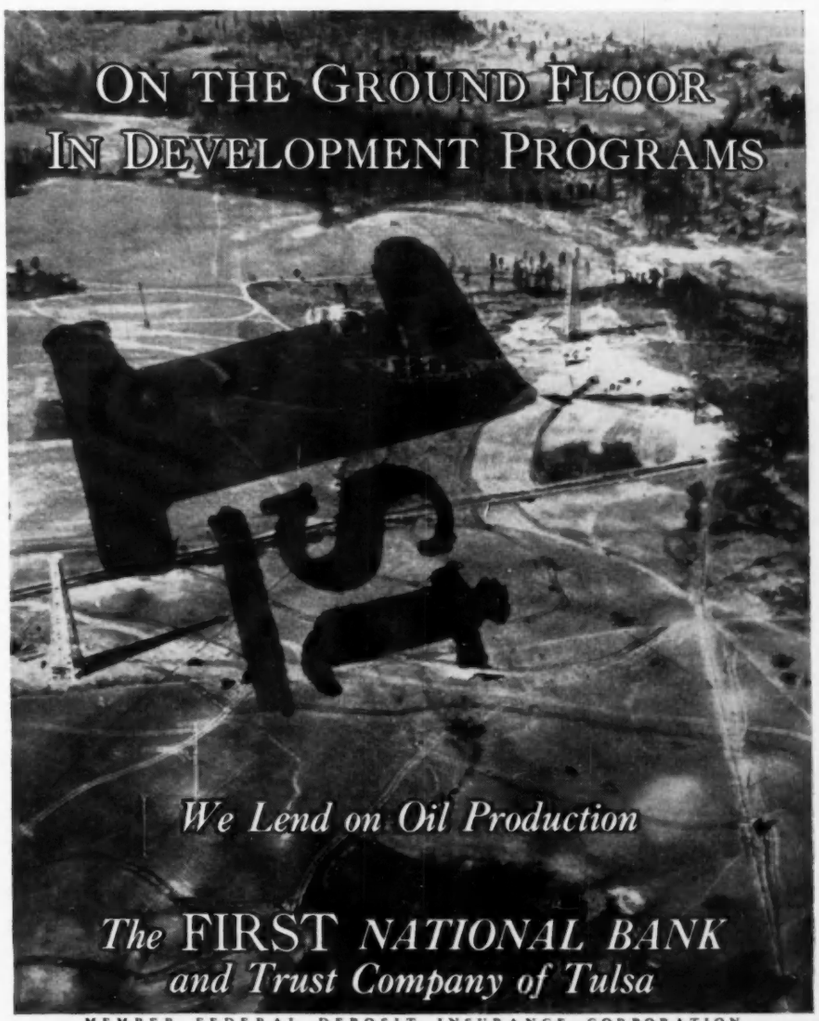
In Loving County, J. E. Whiteside et al's Whiteside 1, C SW SW T&P Section 24, Block 76, Tsp. 1, encountered salt water at 5250-84 feet in Delaware, topped at 5240 feet.

Delta Drilling Company's Slaughter 1-B, SWc of Labot 56, League 40, northeast outpost for the Slaughter field, Hockley County, logged top of solid lime at 4170 feet, or 629 feet subsea, being 60 feet lower on this marker than Stanolind Oil & Gas Company's Slaughter 2-B, the nearest producer. However, it is 60 feet higher than Gulf Oil Corporation's Mallett 2, the most easterly producer. The Texas Company's Slaughter 8, an inside location, earned a potential rating of 759 barrels after using 7000 gallons of acid in pay at 4960-90 feet. Development of this field has been materially curtailed because of the absence of a market for the allowable production other than tank truck shipments and runs by a nearby refinery.

Revise operating rules for Sikes field, Archer County

The Texas Railroad Commission has entered an order applying operating rules for the Hull-Silk field to the Sikes field, Archer County.

Under old rules, Sikes had standard 20-acre spacing with wells located 466 feet from lease lines and 933 feet apart. Under the new rules, wells may be located 330 feet from lease lines and 660 feet apart, but only one well may be drilled on each 20-acre unit.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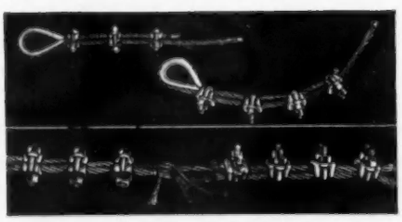

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East Texas

Anderson County gasser blows wild, making some distillate

Tyler.—Two wildcat failures were drilled in the East Texas Woodbine belt the past week. In Kaufman County, Groginski & Gannon's Brown 1, four miles northwest of Kemp, abandoned at 3041 feet after entering the Woodbine at 2723 feet with an elevation of 382 feet. Dilworth Hager et al's Faulk-Coleman 2, situated on Larue Dome, Henderson County, encountered water at 4251-65 feet in Woodbine topped at 4197 feet, and was drilling at 4495 feet to determine the depth of the Georgetown lime.

Distillate production has appeared with the unrestricted gas flow from R. H. Williamson et al's Rogets 1, second producer for the Hemby pool, southwestern Anderson County. This well blew out February 17 while standing at 5407 feet with drill pipe parted near the surface. Short string of pipe was successfully lowered to engage the stem and prevent cratering but the estimated flow of 15,000,000 feet of gas daily could not be killed or shut in. Diversion of the gas the past week through a low-pressure separator revealed that the well is making from four to six barrels of distillate per million feet of gas.

Sun Oil Company's Huddle 1, south outpost for the Chapel Hill pool, Smith County, was awaiting discharge of 50-quart nitro shot directed at oil saturation at 8150-83 feet late last week. The well was previously treated with 500 gallons of acid resulting in the recovery of three barrels of oil. It was drilled to 8226 feet. The company's Everhart 1, southeast of the oil discovery on the north end of the Long structure, resumed drilling after cementing 9-inch pipe at 4503 feet, having logged top of Georgetown lime at 4443 feet with an elevation of 506 feet.

Peyton et al's Harris 1, projected Lower Trinity test for the west edge of the Mexia field, is awaiting orders in Pettit at 5677 feet after twisting off drill pipe near the 3400-foot level. Contributions made for this test require the completion of a 6000-foot hole or production.

Southwest Texas

Northern Victoria County test looks like opening a new field

Corpus Christi.—A catahoula sand strike in northern Victoria County was marked as the outstanding development of the South Texas Gulf Coast during the week. Several other wildcats were at the testing stage in efforts to either widen present field production or establish entirely new sectors.

On the basis of two drill-stem tests in sand at 2694-98 feet, Colton & Colton set casing on bottom in Francis McMahon 1, 2½ miles northwest of Telferner in Victoria County. Plugs were scheduled to be drilled late in the week and the well tested through perforations. A drill-stem test at 2693-98 feet recovered two joints of oily mud, one joint of oil and 400 pounds pressure through ¼-inch choke, top and bottom in 4 minutes. A second drill-stem test at 2994-98 feet recovered 80 feet of free oil and a little mud under 700 pounds pressure, using ¼-inch chokes, top and bottom, in 5 minutes.

The well, located in the north corner of the tract in the I. R. R. Survey No. 27, is on a block of several thousand acres held by Colton & Colton. Weigand Brothers, contractors on the well, also have close-in acreage as does H. F. Wilcox Oil & Gas Company.

Two new repressuring projects were to be started last week in major producing areas. Plymouth Oil Company has plans for an intensive program in Plymouth field, San Patricio County. Magnolia Petroleum Company is to inject gas back into the formation at West Ranch, Jackson County.

Barnsdall Oil Company and Transwestern Oil Company hit a snag on their attempted extension of the Fagan field of Refugio County. P. H. Fagan 2, about ½-mile west of production, is testing upper sands, having failed on its attempt at 6068-73 feet. The regular field pay was found in a sandy zone between 5835-94 feet.

After drilling to 7500 feet, Texas Gulf Producing Company was preparing to plug back San Antonio Loan & Trust Company 1 for a series of production tests. In the McAuley Survey, this test is three miles southwest of Sinton in San Patricio County. It had cored a sand between 6657-72 feet, the upper portion of which showed oil and gas.

Fred Wood et al's Hart 1, Burgess Survey, 1 mile northwest of Sinton, was testing from perforations at 6904-11 feet. The well has been making some oil and gas, but thus far has not been a consistent producer.

Seaboard Oil Corporation's Lovett 1, in the East Mathis area, after drilling to 5695 feet, plugged back and is being tested in a sand at 5600-27 feet, where it showed oil and gas.

Frank J. Gravis, Inc.'s Muil 5 has proved a new producing level for the Clark-Muil sector of the Alice district with the completion of a gas/distillate producer. The well had cored a sand section between 5557-72 feet, but was drilled to 5711 feet. Plugged back, it was tested through 20 perforations at 5558-65 feet. It made a large volume of gas and sprayed several barrels of distillate per day through 9/64-inch choke under 1750 pounds tubing and 1900 pounds casing pressures.

Henshaw Brothers completed Maggie McNeill, northernmost well in the

Wade City field, in sand 4782-4813 feet. It was making a little oil, thus opening a new sand for the pool. Hole has been carried to 4980 feet, but plugged back.

DeWitt County wildcat shows distillate from Wilcox zone

San Antonio.—South Texas Wilcox trend scored its first success April 1 when Atlantic Refining Company's Pearl Conwell 1, on the Thomaston or Myersville prospect in DeWitt County, flowed gas and distillate from perforations at 7855-85 feet where 113 shots had been made. Preparations were being made to erect separator and storage late in the week for a final production test.

The wildcat, near the center of a large block, was at last reports flowing through the tubing under 2100 pounds working pressure and showing considerable wet gas. The flow was through ¼-inch choke.

When casing first was perforated, an 80-minute drill-stem test, using ¼-inch top and bottom chokes, flowed gas with a heavy odor and color of distillate. Pressures built up to a maximum of 1250 pounds within 60 minutes. Bottom-hole pressure mounted to 2500 pounds. The testing tool was pulled and tubing again run into the hole for production.

The well is located 1200 feet from the northeast line and 1100 feet from the southeast line of a 120-acre tract in Block 3, Charles Lockhart Survey. It is 1½ miles west of Thomaston.

This discovery was drilled by the Superior Drilling Company under contract, the hole being carried to 8519 feet where drill stem stuck. It was plugged back and pipe landed at 8291 feet. Series of perforations had been made from just above the casing seat to near the completion level, all showing salt water. The top of the Wilcox sand zone was reportedly picked up at 7832 feet.

The company controls approximately 35,000 acres in the area.

The second strike along the trend was recorded when a Carrizo sand discovery resulted in Anderson-Prichard Oil Corporation and Mills Bennett Production Company's D. E. Robinson 2 at West Tuleta in Bee County. The well was flowing about one barrel of clear distillate per hour with a large volume of gas after perforation at 7545-50 feet with 60 shots. The test was flowing on a drill-stem test, using ¼-inch bottom and ⅜-inch top chokes. The pressure was 500 pounds on these openings. When the top choke was a ¼-inch opening, the pressure stood at 900 pounds.

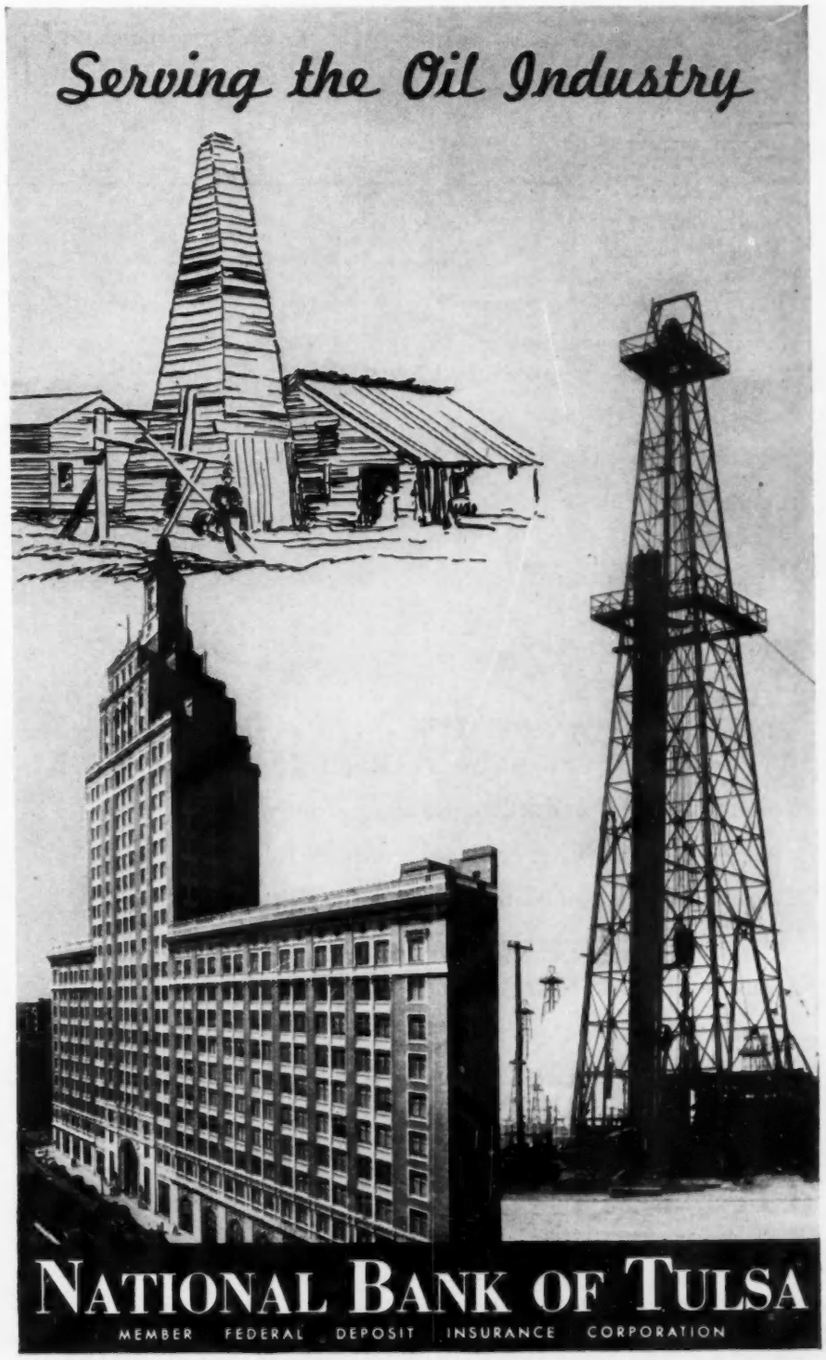
This test, in Section 6, is the second on the West Tuleta structure to be drilled by these operators. The first was carried to 7921 feet, but drill-stem stuck when the well blew out from the 7500-foot sand. The hole was junked and rig skidded 950 feet northeast when the present hole was sunk. It was drilled to 9200 feet, then plugged back. First tests through perforations between 7545-7600 feet recovered gas and distillate, but salt water broke in. This apparently was due to channeling and squeeze jobs were made. Top of the Carrizo sand section was encountered about 7480 feet, so it is likely that additional perforations will be made higher in the casing before final completion.

Starr County wildcat shows; new zone in Rincon field

Mission.—Sun Oil Company's Lehr 1, Section 513, 8 miles southwest of the Sun field and in Starr County, was coring below 4400 feet. On a drill-stem test at 4127-41 feet, it recovered 90 feet of oil and 50 feet of oily mud in 25 minutes. A test at 4153-62 feet recovered oil and oil-cut mud. Another test at 4163-78 feet recovered 15 feet of gas-cut mud in 20 minutes. The last test at 4216-30 feet recovered 362 feet of mud with oil odor in 25 minutes, the tool slipping during the test.

Several miles southwest of the Kelsey pool and in Starr County, Sun Oil Company's E. Rodriguez 1, Santa Teresa Grant, has set casing for a production test. Hole has been drilled to 7502 feet, but plugged back to around 6500 feet. A series of drill-stem tests of sands in the Frio, Vicksburg, Jackson and Yegua zones showed possibilities of new production.

Davis & Company definitely established another oil zone for the Rincon field of Starr County with T. B. Slick 11-B, Section 266. The well has been plugged back from 4278 feet to the 3800-foot sand and flowed oil. This sand has shown in several wells, but Slick 11-B is the first to be completed. No gauge was available late in the week. Previously, it had perforated at 3872-78 feet with 40 shots and flowed 30 barrels of crude in four hours through ¼-inch choke under 240 pounds working pressure. Other perforations



in the casing caused trouble with gas and the hole was reworked. It is being recompleted at the 3872-78-foot level.

McMullen-Live Oak area has shallow oil-gas showings

Three Rivers, Texas.—One new gas field and an oil area resulted from as many shallow tests in the McMullen-Live Oak County sector near Three Rivers.

H. F. Baker's Saunders 1, S. Hays Survey, and 3 miles west of Whitsett, has been finished as a small gas well at 341 feet.

Rhea Nixon et al's wildcat 4½ miles southeast of Tilden in McMullen County, is some sort of oil well in the Mirando sand at 650-56½ feet.

Texas Gulf Coast

Brazoria County tests set area drilling depth record

Houston.—Glenn H. McCarthy has established a new depth record for the Texas Gulf Coast in his well at Chocolate Bayou, Brazoria County. Houston Farms Development Company 2, 3000 feet north of the discovery well, was down to 11,745 feet in shale. The previous deep well for Texas Gulf Coast was Continental Oil Company's Robbins 1, in Matagorda County, which was drilled to 11,619 feet. McCarthy has another 11,000-foot well at Chocolate Bayou, which is down to 11,350 feet in a side-tracked hole. This test has logged oil sands below 11,000 feet, and if productive it will open the deepest producing horizon in Texas. Both of the above wells may be drilled to 12,000 feet or deeper.

Two miles southwest of the discovery well at Anchor, Brazoria County, Glenn H. McCarthy's Neidringhaus 1, J. Bradley Survey, was drilling in shale at 10,807 feet. This test is being drilled tight. Humble Oil & Refining Company's Carr 1, 2500 feet southeast of the discovery, is drilling out cement retainer at 10,487 feet after making a test which showed gas and salt water. Also in the same area the company's Crocett 1, J. De J. Valderas Survey, was making a test at 9626 to 9628 feet after perforating with six shots. The same operator's Galzink & Taylor 1, 4200 feet northeast of the discovery well is shut in after flowing 75.36 barrels of 52-gravity distillate daily through ¼-inch choke, with tubing pressure 2300 pounds and a casing pressure of 2100 pounds. Casing was perforated with 10 shots from 10,480 to 10,483 feet.

East of Montgomery, Harris County, Rod Montgomery, Bunter and T. A. Carlton's Bender 1 was down to 7800 feet, preparing to make a drill-stem test of a gas and distillate sand at 7788 to 7790 feet. If this sand is not productive the hole will be carried on down to 8000 feet.

On the Lissie prospect in Wharton County, Strake Petroleum Corporation is preparing to make another test at 9860-90 feet on W. Poole 1 in the Wilcox formation. The last test made at 9927 to 9950 feet showed salt water, gas and a slight trace of oil through a ⅜-inch choke. Tubing pressure was 200 pounds.

Liberty Wildcats Showing

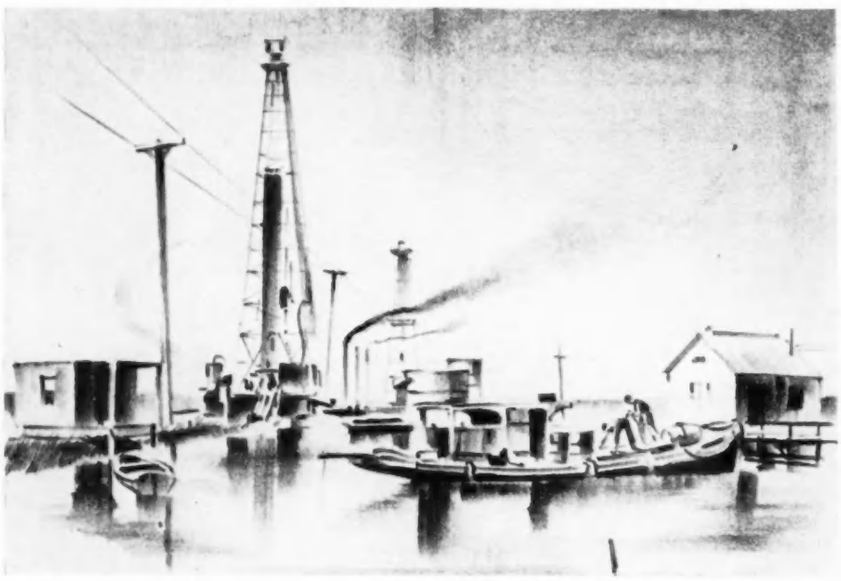
South of production at Martha, Liberty County, Stanolind Oil & Gas Company's Garrow 1 cored sands showing oil at 8070 to 8076 feet and was coring below 8170 feet.

On the Double Gum Bayou prospect in Liberty County, Titantic Oil Company, Hilary Hebert and Sidney Smith are preparing to make another test on Boyt 1, H&TC Section 9. This wildcat has indicated that it would produce for the past several weeks when oil sands were cored and tested. The last drill-stem test, at 8572 to 8580 feet, recovered 4000 feet of salt water through ¼-inch chokes. Other sands up the hole will be tested.

North of Louise in Wharton County, O. C. Carvey's Menefee 1, S. P. Middleton Survey, was abandoned in shale at 4594 feet after coring salt water sands at 4005 to 4016 feet.

On the flank of Sugarland, Fort Bend County, Sam F. Bashara's Sugarland Industries 1, W. Stafford Survey, was coring in shale below 6300 feet after coring salt water sand at 5259 to 5268 feet.

Northeast of production at Fairbanks, Harris County, Landreth, Keystone and Gem Oil Company are making a test on Southland 1, WCRR Section 24. The hole is bottomed at 7528 feet and 5½-inch casing is set at 6921



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feet. It was perforated with 10 shots from 6840 to 6845 feet and it made gas and washwater through a 3/16-inch choke, tubing pressure was 1000 pounds and is still testing.

Shell Oil Company has announced location for a wildcat in San Jacinto County. Coline Oil Company 1 is south of Cold Springs and 1320 feet north of the northeast corner of a 75-acre tract and 466 feet west of the east line of the J. Rankin Survey.

Rowan & Nichols' Lobit 1, Cedar Bayou area, B. Barrow Survey, Harris County, was abandoned last week at 7351 feet in Frio. It had salt water sands from 4040 to 4055 feet and at 4150 feet.

Republic Production Company's Sterne 1, two miles northwest of Joe's Lake field and at Spurger gas field, was completed as an oil producer after having been worked over. The well came in flowing oil from the Cockfield formation. It flowed 502 barrels of 38.5 oil daily through a ¼-inch choke at 4704 feet.

Texas Petroleum Register lists operating firms

R. W. Byram & Company, 104 East 13 Street, Austin, Texas, has announced issuance of the Texas Petroleum Register.

Tabbed and indexed-by-section, this directory includes 526 separate field directories covering most Texas fields. The directory section is divided into 11 subdivisions which correspond to the districts established by the Texas Railroad Commission to simplify checking the state by areas.

One section, entitled "Oil Operators," lists companies that operate in Texas, giving information on their corporate set-up, names of executives, location of home and field offices, and fields in which they operate.

Other sections give similar information on gas operators, naturel gasoline plants, gas purchasers, pipe line companies, and others.

Cost of the Texas Petroleum Register is $10.00. The volume is offered on a 10-day trial basis.

Federal Court enjoins state in South Louisiana land dispute

Judge Wayne G. Borah in Federal District Court, at New Orleans April 3, granted a temporary injunction to The Texas Company restraining the Louisiana State Minerals Board from advertising for bids on approximately 200 acres of oil leases in St. Charles Parish, in the Paradis oil field.

Decision was not contested by the board, but a civil suit against Southern Realty & Planting Company from whom The Texas Company obtained the lease to clear title was filed by the board in the state court at Hahnville.

The board's action was taken before the injunction was granted, and the advertisement on the land was withdrawn earlier in the week.

When the lease was granted 19 years ago, the bayous in the area were navigable. Agricultural improvements have drained the streams to where they are no longer suitable for boats.

The Texas Company claims its lease is for all lands not navigable, while the board contends that the stream beds are still the property of the state.

Louisiana Gulf Coast

Vermilion Parish wildcat opens new field at 11,400 feet

Lake Charles.—A new oil field was discovered in South Louisiana last week when The Texas Company brought in Vermilion Parish School Board 1 on the Erath prospect, Vermilion Parish. The wildcat was perforated with 45 shots at 11,378-388 feet. Washed in on April 3, it made a spray of light oil with maximum pressure of 3400 pounds. It then flowed 81 barrels of 40.3-gravity oil in 16 hours through 12/64-inch choke. Tubing pressure was 3510 pounds. Vermilion Parish School Board 1 was drilled to 11,762 feet in a side tracked hole. Several other sands were cored up the hole.

East of Tepetate, Acadia Parish, Vincent & Welsh were running screen and liner into Ruppert 1, Section 21-7s-1w, for a production test. A test was made last week of the 3500-foot sand, and hole was then plugged back and the formation recored. Hole is now bottomed at 3518 feet, and oil sands were cored at 3495-3513 feet. A drill-stem test at 3505-15 feet showed a stand of mud, and stands of mud and sand cut with 24-gravity oil.

Carter, Perrin & Brian cored a new oil sand at Barataria in Rutley-Wiseman 1, Section 2-16s-23e, Jefferson Parish. The sands were cored at 8840-52 feet, at 9660-70 feet and at 8756-85 feet. An electric log was run. Operators were deepening to contract depth of 10,000 feet. If no new sands are found, operators will probably test one of the above sands. The California Company is preparing to complete its second well at Barataria. State Bayou Barataria cored oil sands at 8195-8210 feet and at 8210-45 feet. Hole is bottomed at 8283 feet, and 7-inch casing was set at 8277 feet. The same operators Zerinque-Community 1, Section 2-16s-23e, cored oil sands at 8280-90 feet in a side-tracked hole.

Testing New Sand

Shell Oil Company made a test of a new sand at West Lake Verrett, St. Martin Parish, and then plugged back for another test. Jeanerette Lumber Comany 4, outpost test, was perforated with 20 shots at 11,343-353 feet and flowed 35.5 barrels of fluid, 20 percent salt water and 80 percent 46.9-gravity oil, through 10/64-inch choke. Gas/oil ratio was 70,900:1.

Continental Oil Company was still testing its discovery at Niblett Farms, Jefferson Davis Parish. Niblett 1, Section 1-11s-5w, was making 100 barrels of 42-gravity oil daily through 10/64- and 1/8-inch chokes. Tubing pressure was 2000 pounds, gas/oil ratio was 2086:1. It is being tested at 11,604-624 feet.

A potential test was made on Plymouth Oil Company's McHugh Heirs 1 at Bayou Pegion, Iberia Parish. The

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discovery flowed 714 barrels of 35.2-gravity oil daily through ¼-inch choke. Tubing pressure was 650 pounds and casing pressure 700 pounds. It was completed in Miocene sands at 8072 feet.

On the Boutte prospect in St. Charles Parish, R. H. Parker's C. L. Thompson 1, Section 87-13s-20e, was coring in shale at 10,130 feet. The wildcat had gas sands at 10,100-110 feet and at 10,-115-125 feet.

Atlantic Refining Company has made a potential test on its discovery at Neale, Beauregard Parish. It flowed 521 barrels in 18 hours through a 3/16-inch choke with tubing pressure of 825 pounds and casing pressure of 875 pounds. The wildcat was completed in Wilcox oil sands at 8370 feet.

Belle Island Wildcat

Sun Oil Company has announced location for a wildcat on Belle Island prospect, St. Mary Parish. Belle Island Corporation 1 is in Section 6-18s-11e, and will be drilled to 10,000 feet or deeper.

On the Coon Point salt dome, Terrebonne Parish, The Texas Company's State 4, 23s-14e, was abandoned at 10,-210 feet in salt, topped at 9777 feet.

Superior Oil Company abandoned Schwing Lumber Company 2 at Bayou Blue, Iberville Parish, second test for the operators on the southwest flank of the dome. The first test logged a new oil sand at 5000 feet and the second, drilled to 7000 feet in salt, had shows of oil at 1970 feet, 4965 feet and 6934 feet.

Sun Oil Company has abandoned its first well at Fausse Point, Iberia Parish. Planters Lumber Company 1, Section 27-11s-8e, was dry at 4711 feet in salt, topped at 4648 feet. The Texas Company's State 7 at Fausse Point, Section 35-11s-8e, was coring in shale at 5421 feet after coring salt water-sands at 5188-93 feet.

In the Perkins area, Calcasieu Parish, Housh & Thompson's Edgewood 1, Section 33-7s-10w, was abandoned at 7515 feet. No oil shows were reported.

Stanolind Oil & Gas Company has completed Cameron School Board 21 on the north side of West Hackberry field, Cameron Parish, in a new sand, deepest for the field. After perforating with 150 shots at 9290-9315 feet, the well came in flowing 292 barrels of 29.5 gravity oil daily through 5/32-inch choke. Location has been made for Cameron School Board 22, 660 feet west of No. 21.

On the North Elton prospect in Allen Parish, W. T. Burton has made location for Calcasieu National Bank 1 in Section 23-6s-3w.

The Texas Company continued to test new oil sands at Lafitte, Jefferson Parish, in L. L. E. Lafitte, Section 20-17s-24e. Last week tests at 5130-40 feet recovered 2400 feet of oil and 1000 feet of salt water. Hole was plugged back and casing perforated at 4785-4800 feet with 40 shots. These are the shallowest sands yet found at Lafitte.

Mikton Oil Company was testing Martinez 2, 1650 feet southeast of the discovery well at Lafourche Crossing, Lafourche Parish. Perforated with 15 shots at 10,108-120 feet, a drill stem test showed it would flow 12.75 barrels of 41.7-gravity oil per hour.

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Second location follows oil strike in LaSalle Parish

Shreveport.—A second location was made last week by H. L. Hunt, Placid Oil Company, for the new shallow oil field at Olla, LaSalle Parish, opened in the Wilcox formation a fortnight ago at the same operator's Louisiana Central Company 9, NE NE 13-10n-2e. The new location is Louisiana Central Lumber Company 10, C NW SW 7-10n-3e.

Eight miles northeast of the Olla discovery well, Arkansas Fuel Oil Company started a work-over job at Louisiana Central Lumber Company 1, C NW SW 31-12n-3e, Caldwell Parish, completed last October as a dry hole at 7528 feet. Operators drilled out cement plug to 3675 feet and re-conditioned hole preparatory to taking side-wall cores and expect to set 5½-inch casing and test the Wilcox formation found productive in the Olla discovery well at 2269 feet.

A half-mile east of the Hunt producer, Hunt and Arkansas Fuel Oil Company's Goodpine 1, NW NW 18-10n-3e, waited on cement to set after a squeeze job following testing of salt water at 2407-15 feet. This test was plugged back from 8997 feet.

One mile south of production in the Joaquin gas/distillate field, Shelby County, Texas, which produces from the Glen Rose lime, Earl McDaniels and associates reported a showing of oil and gas in J. S. Swann 1, Ann Gray Survey, in the Blossom (Ozan) horizon, in a core at 2004-24 feet. They increased mud to drill ahead.

Near Hallsville, Harrison County, Texas, Fohs Oil Company made location for a wildcat test, R. L. Sypert 1, Richard Hooper Survey.

Arkansas

Wildcats in Columbia and Craighead counties abandoned

El Dorado.—Another Smackover-lime geophysical wildcat prospect in Arkansas was abandoned last week at J. M. Forgotson and associates' L. M. Dendy 1, C SW SW 24-17-19, Columbia County, several miles southeast of the Village field. At 7706 feet this test showed 2200 feet of salt water in a 7-minute drill-stem test and was abandoned at 7768 feet in the Smackover lime.

Another wildcat was abandoned in Arkansas during the week, Tenn-Ark, Incorporated's Ruby Martin 1, NE NE 35-14n-3e, Craighead County, a dry hole at total depth of 5092 feet. It had been drilling intermittently for over a year.

Standard Oil Company of Louisiana's W. P. Sturgis 1, Section 1-17-27, Miller County geophysical wildcat prospect, planned for the Smackover lime and which showed for production in the Blossom and Paluxy horizons cored at 6362 feet in a sand in the Travis Peak horizon.

Mississippi

Yazoo County wildcat showing for states second oil field

Jackson, Mississippi.—Indication of a second oil field for Mississippi, 28 miles northeast of Tinsley Dome field and also in Yazoo County, was given last week as Kingwood Oil Company's Mrs. R. E. Wilburn 1, NE 31-12n-3e, showed 900 feet of 37.6-gravity oil in a 10-minute drill-stem test with ¼-inch chokes top and bottom. The showing was at 4871-92 feet, after 6 feet of oil-saturated sand was logged just above bottom in the Eutaw (Blossom) sand. With elevation of 257 feet, this test topped Eutaw at 4882 feet, Wilcox at 1070 feet, Midway at 3045 feet, and Midway chalk at 3957 feet. Location is on a geophysical prospect found with seismograph. Exchange Oil Company owns ½ interest in the test and the surrounding block of acreage.

This development will give added impetus to leasing and geophysical exploration set off in Mississippi last August with discovery of oil at Tinsley Dome, the first commercial oil in the southeastern states. Since that time over 6,000,000 acres of leases have been taken in the state, according to scouts' estimates, and more than 60 geophysical units have been sent into the state.

Existence of a salt dome at the Glass Dome structure in Warren County was proven at W. O. Allen's Culley 1, Culley Tract, Section 16-14n-3e, Warren County. With elevation of 203 feet, the wildcat topped salt at 4025 feet and was abandoned, still in salt, at 4490 feet.

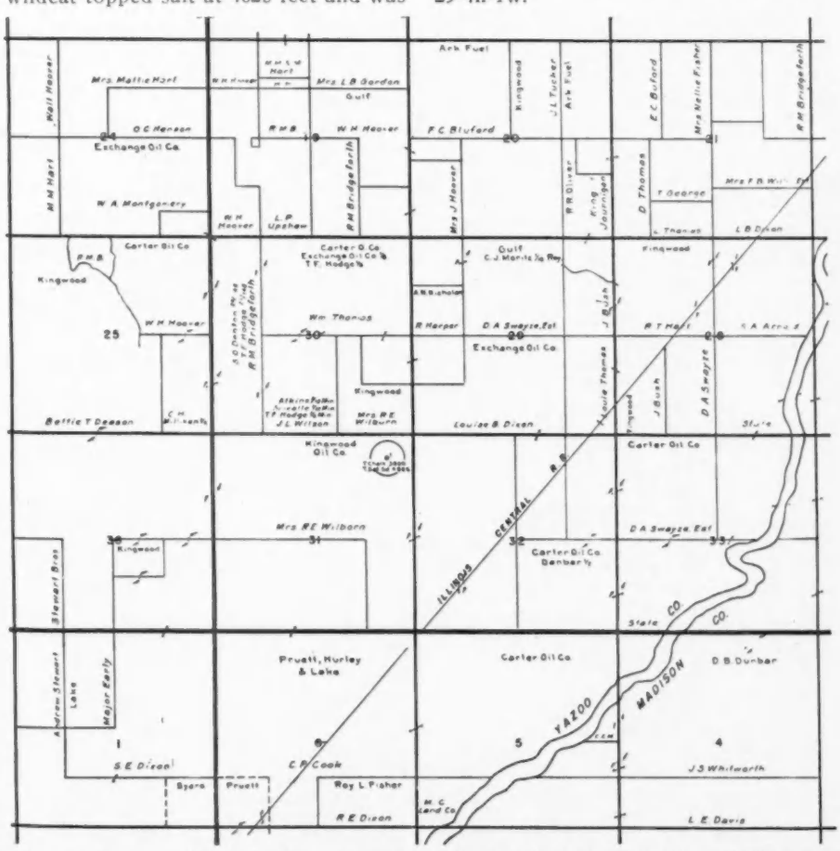
Three new wildcat locations were made last week in Mississippi. Lyons & Neely, of Shreveport, will drill a 5000-foot test in C NW SW 4-13n-4e, Humphreys County. In Oktibbeha County, M. W. Shiarella, of Owensboro, Kentucky, will drill Murphy 1, NW NW 28-17n-12e; and in Yalabousha County, Stewart Oil Company, of Tyler, Texas, will drill Ruth Creekmore 1, NE 21-24n-7e.

In Newton County, Herton Oil Company, of Houston, Texas, is taking a block centering around Section 29-6n-12e; and in Scott County, J. R. Smith is leasing in Townships 5n and 6n, Range 8e. J. P. Evans, of Shreveport, who has a 20,000-acre block in Township 17n, Ranges 5e and 6e, Carroll County, near Vaiden, recently added 3400 acres to this block, assembled last fall. Newal Mineral Lease Company has secured all mineral rights on 50,000 acres of Adams-Edgar Lumber Company in Scott and Smith counties.

Edgar C. Johnston, of Longview, Texas, is moving in materials for a test in Greene County, Alabama.

Arkansas permits

Three drilling permits were issued last week by the Arkansas Oil & Gas Commission, as follows: Columbia County—Tide Water Associated Oil Company and Seaboard Oil Corporation's C. H. Murphy 1, C SW NE 14-18-19; LaFayette County—East Texas Refining Company and Erwin & Leach's Cleve Warren A-3, C S½ NW NW 24-16-24; St. Francis County—D. T. Hargraves' J. T. Welford 1, NEc SE SE 29-4n-1w.



Ownership map (Zingery Map Company, Houston) shows location of Kingwood Oil Company's Wilburn 1, which has showings indicating a possible second oil field in Mississippi. It is 28 miles northeast of Tinsley Dome field.

New Mexico

Second Mattix extension to revive work in area

Hobbs.—Revival of development on the north end of the Mattix field, Lea County, is to follow completion of a second extension producer. Olsen Oil Company's Blinebry-Texaco 1-A, C SE NE 30-23s-37e, advanced production to the north and east in flowing 154 barrels initial after 260-quart nitro shot at 3552-3636 feet. Culbertson & Irwin's Langford 1 recently windened the area to the west in supposedly dry gas territory with a flow of 54 barrels of oil after shot at 3618 feet. Each will require offsets.

Lea County accounted for 10 new operations the past week. Vacuum field set the pace with 4 tests, including Ohio Oil Company's State-Warn 6, situated on the south edge of production and an irregular location east of a large natural producer added recently by the company on the tract. Magnolia Petroleum Company authorized work on State-Bridges 60, 61 and 62, all regular locations in Section 14-17s-34e. The company is operating 4 rigs in the field. A similar number of contract rigs are being used by The Texas Company in catching up with offsets and two additional in other Lea County areas makes the latter the most active in the county.

Jones & Yates' Robinson 1-B, SE SW SW 35-17s-29e, north edge of the Loco Hills field, Eddy County, missed the regular pay and was drilling at 2800 feet to try for a Graybar horizon. This lease was farmed out by Republic Production Company, which has a small well from the deeper zone in the southeast corner of the section. Continental Oil Company's State 1-N, ⅝ mile south by west flowed 339 barrels of oil through casing in 24 hours after 190-quart shot at 2613-53 feet. Martin Yates and Continental Oil Company's Brainard 3, NW SW NW 11-18s-29e, developed water after 60-quart shot at 2644-57 feet, flowing 25 barrels of oil and 10 barrels of water in 2½ hours through tubing choke.

MISSISSIPPI LEASE AND ROYALTY MAP

Outline of 185 drilling blocks including the thirty-seven wildcats scheduled to be drilled in 1940. INCLUDES DRILLING BLOCKS IN THE KINGWOOD DISCOVERY AREA.

Recent locations, dry holes, geophysical information on sixty major company blocks with number of acres each company has leased. Names and locations of recognized oil and gas prospects.

Size 48"x28", Paper, $7.75; Cloth, $10.00

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Geophysical Information Service

1201 Fidelity Bldg.

Phone 2-5828 **Dallas, Texas**

Michigan

Test a mile from production showing for pool opener

Mt. Pleasant, Mich.—A semi-wildcat a mile south of a recent ½-mile south extension to the Overisel pool, Frank S. Vahue's Kline 1, C W½ SW NW 10-3n-14w, Heath Township, Allegan County, filled up 1250 feet from Traverse lime at 1530 feet and was to be acidized. Dry holes in the general area indicated it might be a pool opener rather than an extension.

Fox & Flemings' Lechlentner 1, wildcat in Section 27-2n-9w, Hope Township, Barry County, bottomed at 1844 feet and plugged back to 1825 feet for test after drilling water sand in Traverse. Traverse pays logged at 1799 and 1814 feet will be acidized. The test swabbed as high as 24 barrels in 24 hours before deepening brought water.

The Holland Township play, Ottawa County, which loomed as the best of the year when Crown Development Company's Reimold 1, Section 34-5n-15w, was completed for 200 barrels natural in Traverse, had all but "blown up" last week with the first 4 completions dry and a fifth abandoned at 495 feet. Dry holes included tests into the Traverse, the formation from which the discovery is producing, on the north, south, west and northwest sides, all within ½ mile. Five more tests are drilling and 3 others were shut down.

Mesel & Spielbergs' Lipski 1, Section 14-7n-13w, Tallmadge Township, Ottawa County, ¾ mile northwest of development in the Walker-Tallmadge field, flowed 60 barrels after acid to indicate an important extension. When operators attempted to get a second acid shot into the well, the casing seat went out and had to be recemented.

Seaboard Oil Company was abandoning Hodges 1, wildcat in Section 22-5n-10w, Caledonia Township, Kent County, at 2231 feet after drilling Dundee and Monroe zones. A gas show was logged in Monroe at 2228 feet. To date, the Traverse has been the only formation to produce commercially in southwestern Michigan, excepting in the old Muskegon area drilled in 1927-1929. That field is producing from Traverse, Dundee and Monroe. The Dundee and Monroe are the chief producers in the Basin. Only a few scattered tests in the 1938-39 shallow drilling campaign through the Kent, Allegan and Van Buren areas have been carried below the Traverse. The trend the past few months, however, has been to drill Dundee and Monroe where the Traverse has not produced. Major companies, in particular, are testing deeper beds on their wildcats.

C. L. Maguire, Inc., was junking Clark 1, SE SE SE 32-16n-2w, Midland County wildcat, at 4663 feet, short about 500 feet of its objective. Tools were lost from a broken driling line at 4663 feet two weeks ago and attempts to clean out the hole failed. Test topped Dundee at 3726 feet and Monroe at 3960 feet. A good gas/oil show was logged in Monroe at 4544 feet, a horizon of the formation that produces in both Bay and Tuscola counties. Abandoning of Clark 1 ended the deepest test this year in Michigan. It left only one active test in the Basin with the Sylvania sand as the objective. The other is Carter Lease, Inc.'s Fee 6, Section 18-13n-1w, Porter Township, Midland County, now reaming 4240 feet.

Sixty feet of Michigan Stray sand, chief gas producing bed in Michigan, was cored on McClanahan & Rowmors' Quist 1, wildcat in Section 22-21n-7w, Riverside Township, Missaukee County. Sand logged at 1389 feet showed 18 feet of gas saturation and 16 feet of oil saturation. Six-inch has been cemented at 1680 feet, and the test will be deepened to around 4000 feet.

California

Rio Bravo outposts add more productive territory

Los Angeles.—A southeastern outpost at Rio Bravo has been staked by General Petroleum Corporation, Wallace 1, Section 1-29-25, offsetting Superior Oil Company's Merrill 1 to the west.

For more than a year the proven area of the Rio Bravo field has been progressively extended northwest and southeast with producing wells now extending for more than two miles along this axis. So far in development of the northwest area each new location has been higher structurally.

In the Wasco field, Continental Oil Company's Mayer 1, Section 7-27-24, is drilling and coring below 13,086 feet in hard shale above the Rio Bravo zone. This company completed KCL A-5, Section 8-27-24, recently at 13,158 feet but since completion water has broken into the hole and water-witch is being run to locate its source.

In the Shafter area, Continental Oil Company's Community 1, wildcat in Section 12-28-24, cored gray sand in the equivalent of the Wasco A-2 zone from 12,414 feet to roughly 12,635 feet and is drilling in shale below 12,640 feet.

Inconclusive results were obtained by The Texas Company on S.P. 1, Section 23-17-15, in the Cantua Creek-Turk area of Fresno County. The tests were attempted on the interval between 9500 and 9600 feet. Hole is being drilled at 9655 feet in lower Eocene, and is believed looking for Cretaceous. Top of the Eocene was found at 8775 feet.

Western Gulf Oil Company's KCL No. B-45, deep test in the Fruitvale field, Section 22-29-27, is reported to have found the Vedder zone wet between 8950 feet and 9000 feet. A fair cut was shown by streaks of sand in the Rio Bravo encountered at approximately 8920 feet. It is scheduled to be cored ahead another 50 feet at least.

Richfield Oil Corporation is preparing to spud a second deep test well on the southern flank of the Wheeler Ridge structure. Last year the company drilled KCL 1 to 11,004 feet and obtained some production but not commercial. KCL 2 is in Section 28-11-20, 2000 feet south of the first venture. Richfield Oil Corporation has under lease more than 50,000 acres in the southern portion of the San Joaquin Valley, all in Kern County, and this test will be the second of six wildcats on the properties. The first well, Tejon Ranch 1, is drilling in Section 2-10-19, in shale at 2530 feet.

Rocky Mountain Fields

Cole Creek deep test swabbing in Dakota and Lakota

Casper, Wyo.—General Petroleum Corporation's Government 1-21, CNW NW NW 21-35n-77w, third deep well in the Cole Creek field, 13 miles north of here, was swabbing emulsion after drilling in with oil. Bottom is at 8050 feet in Dakota and Lakota formations, and 7-inch production casing was set at 8002 feet. After 24 hours swabbing, the test has failed to respond as was expected from excellently-saturated cores recovered from Dakota series.

An outside location on the west side of the Lance Creek field, Niobrara County, Wyoming, Minnelusa Oil Corporation's Joss 1-A, NE SE NW 6-35n-65w, was swabbing water from Joss sand in the Minnelusa series, to which it deepened at 5443 feet. The test is an old Sundance completion. Lance Creek had one new location, Minnelusa Oil Corporation's Mackinnie-Thompson 10, NWc NW NE 7-35n-65w, waiting on cement to set around 12½-inch surface casing at 322 feet.

East extension test to Lance Creek, Ohio Oil Company's State-Lamb 8, NWc NW NW 36-36n-65w, topped Upper Sundance at 4140 feet, and was drilling below 4220 feet. The well is ½ mile beyond production. The company is testing production at 5407 feet with hole bottomed in Joss sand in Carrie Putnam 14, SW NW SW 33-36n-65w, north side well that failed to get production in the Leo sand, first horizon of the Minnelusa series, and deepened for the Joss.

Following North LaBarge Oil Company's extension of LaBarge field, Sublette County, southwestern Wyoming, Mravel Oil Company is going back into hole of Government 1, NE NE SE 28-27n-113w, which was completed for 8 barrels daily at 1040 feet in January. The well, an outside location on the north boundary of LaBarge field proper, is 2 miles south and ¼ mile east of North LaBarge Oil Company's Government 1, SWc NE SE 8-27n-113w, which was pumping 25 barrels daily on production test. The well came in for around 50 barrels in its first 24 hours a week ago. Bottom is at 2110 feet with 8¼-inch production string set on top of the contact sand at 1943 feet, in the Base of the Almy of Tertiary Age where it lies uncomformably on the Cretaceous.

Two important tests were getting under way in northwestern Colorado. In the recently-discovered Wilson Creek field, The Texas Company and The California Company were rigging up rotary to resume drilling from 765 feet in Government-Unit 2, NW SE SW 27-3n-94w. It will be the third well to drill in the field. The discovery test had Colorado's largest initial production. In Hiawatha field, Moffat County, Mountain Fuel Supply Company has located Wilson 5, SW SW NW 23-12n-100w.

Continental Oil Company and Vicker Petroleum Company were moving in for a test of Government Canyon structure, Crook County. It will be Government 1, CNW SW 28-57n-64w.

UNITED STATES WELL COMPLETIONS

Arkansas

Company, Well and Location	Init. Prod. Bbls.	Depth
Columbia County (Magnolia)—		
Placid oil Co., Booth Unit 2, 20-17-19	250	7595
Columbia County (Atlanta)—		
Tidewater & Seaboard, Mack 1, 16-18-19	150	8268
Columbia County (Wildcat)—		
J. M. Forgotson et al, Dendy 1, 24-17-19	*	7768
Craighead County (Wildcat)—		
Tenn-Ark., Inc., Martin 1, 35-14n-3e	*	5092
Nevada County (Troy)—		
Berry Asphalt Co., Grove 9, 10-14-20	20	1266

California

Company, Well and Location	Init. Prod. Bbls.	Depth
Orange County (Huntington Beach)—		
Standard, Huntington B-4	34	4434
Los Angeles County (Long Beach)—		
A. S. Johnston Dr. Corp., No. 40	60	3702
McKeon Corp., Oil Exchange 2	125	4485
Texas Co., Davidson 10-A	58	4715
Los Angeles County (West Montebello)—		
Standard, Braun 6	216	7650
Los Angeles County (Rosecrans-Athens)—		
Union Oil, Rosecrans 39	509	7950
Los Angeles County (Wilmington)—		
Barnhart Morrow Cons., Wilmington Com 1	250	3720
Long Beach Oil Dev., Z (LB) 8	146	4132
O'Donnell & Conway, Cliff 1	130	3405
Union Pacific RR, U.P. E-22	195	4021
Kern County (Edison)—		
Wood-Callahan, Heyden 1	125	4370
Kern County (McKittrick)—		
Franco-Western, No. 17	255	2214
Kern County (Belridge)—		
Belridge Oil Co., No. 53-26	821	8410
No. 11	811	8380
Fresno County (East Coalinga-Eocene)—		
Robert S. Lytle, Operator No. 51-7F	1980	7958
Standard, No. 77-13C	4030	7789
Universal Cons. Oil, Binkley 2..No Est.		8063
Kern County (Greeley)—		
Standard, KCL 12-7	3005	11510
Kern County (Mountain View)—		
Allied Petroleum Corp., Allied 35	300	5347
Kern County (Rio Bravo)—		
Union Oil, Kerneo 56-27	1125	11500
Kern County (Ten Sections)—		
Shell, KCL B-34-28	126	8220
KCL A-72-30	3078	8220
Ventura County (Ventura Avenue)—		
Shell, Taylor 113	524	7660
Tide Water, V. L. & W. 43	2582	9885

Colorado

Company, Well and Location	Init. Prod. Bbls.	Depth
Larimer County (South Berthoud)—		
L. R. Steele et al, Mundt 1, ne ne ne 7-3n-69w	*	2135

Illinois

Company, Well and Location	Init. Prod. Bbls.	Depth
Bond County—		
Paul Harr, Thacker 1, c e½ ne 29-7n-4w	*	1965
Clinton County—		
Algona, Marshall 1, se c sw 12-1n-1w	1136	2938
Ray Brown, Fortney 3, se ne se se 12-1n-1w	840	2915
Kroder-Raynolds, Kaelin 4, sw c se 12-1n-1w	750	2933
H. Shmulem, Buchanan 1, blk 5, lot 6 12-1n-1w	694	2918
Taylor Dr. Co., Baker 2, ne nw se se 12-1-1w	732	2915
Bradshaw & Harris, Beecham 1, se ne ne ne 13-1n-1w	1800	2913
T. T. Eason, Centralia Bldg & Loan 1, s½ lot 2, blk 2, 13-1n-1w	448	2912
Hughes Pet. Co., Buehler 1, lot 2, blk 1, 13-1n-1w	173	2912
Jones & Jones, Becker 1, ne sw se ne 13-1n-1w	936	2914
Urban Oil Co., Willow Grove School 1, sw sw ne se 13-1n-1w	120	2914
Weidler & Scott, Oils Security 1, se nw ne ne 13-1n-1w	694	2918
Edwards County—		
Noah & Morrison, Prudential Life Ins. 1, se ne ne 24-2s-10e	145	3240
Longhorn Oil Co., Heil 3, swc 7-3s-13w	90	2508
Fayette County—		
Texas, Pruitt 1, nw nw ne 1-5n-2e	*	1789
Ohio, Schwarm 10, ne sw nw 31-6n-3e	120	1620
Schwarm 11, se sw nw 31-6n-3e	192	1620
Max Pray et al, Ferguson 6, c n½ nw nw 18-7n-3e	*	3246
Shell, Jedamski 9, ne ne se nw 21-7n-3e	*	1560
Carter, Sinclair-Huffman 2, se ne ne 2-8n-3e	138	1556
Weaber 3, nw se nw 21-8n-3e	112	1565
Henderson, Eglehuff 1, sw se sw 19-10n-4w	*	1005
Gallatin County—		
F. E. Earldson, Logan 1, nw nw sw 16-9s-9e	*	1850
Hamilton County—		
Kingwood, Wilson 1, nw nw se 6-6s-7e	120	2695
Lawrence County—		
Kentucky Nat'l et al, Gerhardt 1, n½ nw sw 18-4n-10w	¶9.9	1127
Crews 1, c sw ne 30-4n-10w	*	1754
Marion County—		
Osborne et al, Weherle Bakery 1, sw sw sw sw 7-1n-1e	465	2921
W. R. Hayes, Storer 2, se se nw sw 18-1n-1e	237	2901
Koenig, Kaster 1, se nw nw sw 18-1n-1e	1080	2955
Texas, Hays 9, nw nw nw 3-1n-2e	50	1899
Hollingsworth, Kalkbrenner 11, sw se ne sw 5-1n-2e	1286	3446
Texas, Friedrich 11, sw se nw 7-1n-2e	245	2080
Hawthorne 26, ne nw nw ne 8-1n-2e	189	2050
Fyke 5, nw ne ne nw 17-1n-2e	189	2105
Magnolia, Young 93, sw ne ne se 20-2n-2e	90	3441
Ohio, Young Hrs. 40, nw se sw 20-2n-2e	2840	3468
Shell, Salem State Bank 1, ne ne nw se 20-2n-2e	60	3431
Young Hrs. 14, ne nw ne se 20-2n-2e	100	3422
Texas, Sweney 8, nw ne nw 20-2n-2e	126	2090
Toberlin, Young Strip 3, e½ e½ 20-2n-2e	120	3446
Texas, Young 23, se sw sw nw 21-2n-2e	945	3465
Magnolia, Shanafelt 41, sw se sw se 29-2n-2e	3311	3426
Texas, Friedrich 16, ne sw se nw 29-2n-2e	2275	3445
Dunning 12, nw se se se 30-2n-2e	6048	3397
Friesner 21, nw ne ne nw 32-2n-2e	4473	3370
Lee 27, nw se ne ne 32-2n-2e	2212	3445
Monroe County—		
S. B. Remington, Kolmer 3, se ne nw nw 2-2s-10w	15	547
Randolph County—		
G&L Oil Co., Schulze 1, ne se nw 2-7s-6w	*	738
Richland County—		
Pure, Colborn 4, c sw sw sw 33-4n-9e	211	2605
Wabash County—		
Mayhew et al, Kogan 5, se ne ne se 2-1n-12w	20	1950
Mabee Dr. Co., Bump 6, se sw sw 4-2s-13w	*	2494

(Continued on next page)

Summary of Drilling Operations in the United States, Week Ended April 6, 1940

	WELLS COMPLETED							*PERMITS FOR NEW WELLS				
	Completions	Oil Wells	Gas Wells	Failures	Initial Production	Total 1940	Total this Date 1939	This Week	Total this Month	Total 1940	Total this Date 1939	Year Total 1939
Alabama	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....
Arizona	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Arkansas	6	3	.....	3	420	53	61	3	3	35	52	223
California	27	24	.....	3	20,495	343	285	18	18	276	254	1,174
Colorado	1	.....	.....	1	.....	3	7	.....	.....	.....	.....	.....
Florida	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Georgia	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Illinois*	57	45	1	11	36,627	933	1,030	70	70	1,033	.....	893
Indiana	11	5	2	4	437	108	27	.....	.....	.....	.....	.....
Kansas	24	21	.....	3	36,168	402	323	40	40	467	333	1,583
Kentucky	9	3	.....	6	90	67	172	.....	.....	.....	.....	.....
Louisiana	35	29	2	4	6,895	411	252	38	38	397	307	1,444
Michigan	44	24	.....	20	4,284	373	315	22	22	340	279	1,419
Mississippi	.....	.....	.....	.....	.....	39	1	.....	.....	.....	.....	.....
Missouri	.....	.....	.....	.....	.....	4	.....	.....	.....	.....	.....	.....
Montana	1	.....	.....	1	.....	33	25	.....	.....	.....	.....	.....
Nebraska	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
New Mexico*	18	15	2	1	8,112	206	174	12	12	204	.....	293
New York	20†	20†	.....	.....	86	302†	136†	.....	.....	.....	.....	.....
North Dakota	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Ohio	5	2	3	.....	18	224	215	.....	.....	.....	.....	.....
Oklahoma	68	29	15	24	13,914	577	523	42	42	536	519	2,059
Pennsylvania	36†	35†	1	.....	50	683†	315†	.....	.....	.....	.....	.....
South Dakota	.....	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....
Tennessee	.....	.....	.....	.....	.....	2	.....	.....	.....	.....	.....	.....
Texas	206	134	5	67	73,769	2,830	2,694	342	342	3,083	2,966	10,269
Utah	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
West Virginia	8	3	4	1	8	162	140	43	43	127	101	718
Wyoming	3	2	.....	1	1,884	42	46	.....	.....	.....	.....	.....
Total this week.	579	394	35	150	203,257	7,847	6,742	630	630	6,545	4,811	20,075
Total last week.	485	377	16	92	206,960	7,268	6,315	330	1,821	5,915	4,424	.....
Total this year.	7,847	5,704	473	1,680	3,013,985	.....	.....	.....	.....	.....	.....	.....

* This tabulation includes those states where weekly data are available; figures for Illinois date from October 15, 1939; New Mexico from August 1, 1939.
† Includes water-input wells.

United States Well Completions—*Continued*

Illinois—Continued

Washington County—

Magnolia, Bruns 1, se se nw 15-4s-3w ..... • 1671

Wayne County—

Pure, Miller 1, c e½ ne ne 7-1n-8e ..... • 3105

Obrecht Consol. 1, c e½ nw nw 9-1n-8e 423 3107

Scholfield 2, c e½ se nw 33-2n-8e 100 3117

White County—

Kingwood, Bailey 2, sw ne nw 25-6s-8e 100 2523

I. D. Lain, Storms 4, se ne sw 14-6s-9e 176 2277

Indiana

Daviess County—

Hartman et al, White 2, sw c nw sw 22-2n-7w ..... • 1540

Gibson County—

O Meara, Maier 1, sw ne sw 21-3s-13w ..... • 2984

Joe Bander et al, nw sw ne 13-3s-14w 209 2506

Papoose Oil Co., Cooper 2, nw sw sw 18-3s-13w 140 2493

Jay County—

Ellen-Kerlin-Burke, Outcolt 1, nw ne sw sw 24-22n-14e 3 1131

Posey County—

Somers & Egan, Keck Hrs. 3, swc nw ne 34-3s-14w 80 2165

Joe Minton et al, Hill 1, nw nw sw nw 7-4s-13w ..... • 2988

Spencer County—

Ky. Nat. Gas & Obin, Scanahorn 1, ne nw 29-7s-6w ..... ¶1.06 914

W. W. Damron & Ky. Nat. Gas., Miller & Axton 1, c w½ ne se 30-7s-6w ..... ¶15.58 921

Schnell Tr, Biggerstaff 1, sw sw se 6-7s-7w 5 1056

Vanderburgh County—

John Knapp et al, Nagle 1, nw nw se 8-6s-11w ..... • 1255

Kansas

Barton County—

Gulf, Redetzke 1, nw sec 19-16-11w 1198 3341

Hinkle, Rous 1 ce½ ne ne 32-16-11w • 3404

Schneider, Ernsting 1, ce½ se sw 6-20-11w 418 3339

Lario et al, Zahorsky 3, nw sw ne 23-20-11w 3000 3273

Butler County—

Associated O. & G., Cook 6-A, nw sw ne ne 4-26-5e 30 2597

Cowley County—

Markey et al, Anderson 1, cn½ ne nw 21-30-3e ..... • 3211

Hawkeye, Monyhan 1, se sw se 16-31-4e ..... • 3373

Ellis County—

Dickey, Kollman 2, cs½ sw ne 18-11-17w 3000 3370

Cities Service, Hall "B" 13, sw se nw 26-11-17w 3000 3528

Wakefield, Burnett "E" 1, cw½ se ne 1-11-18w 1116 3590

Hall, Smith "A" 8, c w½ nw ne 14-12-16w 2683 3103

Twin Dr. Co., Karlin 3, c se se 6-12-17w 380 3672

Ellsworth County—

Gulf, Spododa 1, ce½ se se 8-16-10w 2551 3388

Continental et al, Steinberg 4, ne swc nw 27-17-8w 3000 3229

Greenwood County—

Weideman, Henderickson 1, nwc se 25-27-8e 30 2744

Reed et al, Axton 1, se nw ne 17-28-11e 30 775

Marion County—

Harwood Oil Co., Novak 6, nw ne nw 28-17-4e 300 2414

McPherson County—

Buntie, Ziettlow 1, cw½ ne se 18-17-1w 489 2655

Bradley et al, Mattson 2, ce½ ne ne 30-20-5w 3000 3357

Rice County—

Skelly, Vokeland "B" 9, c e½ se nw 5-18-10w 3000 3218

Gulf, Stout 7, cn½ ne ne 6-18-10w 3000 3235

Russell County—

McBride, Jellison 6, se nw sw 19-13-14w 137 3271

Coralena, Dumler 7, sw nw nw 36-15-14w 2806 3340

Stafford County—

Stanolind, Harbeson 6, cwl nw ne nw 11-24-11w 3000 3779

Kentucky

Breckenridge County—

H. S. Morgan et al, Mathews 1.... • 400

Daviess County—

Stuart et al, Hansford 5 ..... 50 1481

Mecca Oil, Jackson 1 ..... • 727

J. C. Miller et al, Crutcher 1..... • 1724

Hancock County—

W. J. Flesher et al, Quissenberry 1 ..... 5 485

C. H. Karysl, Boling 2..... • 635

Henderson County—

Imperial O&G Prod. Co., Williams 1 • 890

Meade County—

Northern Oil Corp., Green Well 1.. • 1460

Ohio County—

John Tuttle, Wimsatt Hrs. 3..... 35 153

North Louisiana

Cado Parish (Pine Island)—

L. L. Sugar, Hart 2, 22-21n-16w.... 25 1021

Texas Co., Noel B-21, 14-21n-15w.. 325 1680

Stanolind, Alexander 2, 21-21n-15w • 1750

Noel 4, 24-21n-15w..... 5 1636

L. M. Calhoun, Jr., Tr., Crawford 1, 32-21n-15w 40 1592

L. L. Sugar, Etchison 3, 32-21n-15w 60 1535

S. S. Hoyman, Lane 1, 1-20n-16w.. 50 1498

Hugh Carney, Burton 2, 1-20n-16w 50 1515

H. J. Strief, Noel Est. 4, 12-20n-16w 80 1545

Morehouse Parish (Monroe)—

Southern Carbon Co., Tensas Delta 28, 10-21n-4e ..... ¶2½ 2194

Sabine Parish (Converse)—

J. H. Thames, Long Bell Lbr. Co., 1, 5-8n-13w 10 1987

A. R. Chestnut, Walden 1, 27-10n-13w 10 2006

South Louisiana

Abbeville—

Continental, Motty 1,..... 254 10,444

Anse La Butte—

Emerline Oil Co., Nickerson 1,..... • 2634

Bancroft—

Republic, Columbia Land & Timber Co., 15,..... 352 7925

Bateman Lake—

Texas Co., State 3,..... ¶4 10,710

Charenton—

Pan American, Ecuer 6-A,..... 24 965

Veeder 21 ..... 80 1250

St. Mary Oil Co., Herton 4,..... 154 1169

East Hackberry—

Harrison & Abercrombie, Demke 1 722 7324

Eola—

Amerada, Whitlow 4,..... • 8655

Martex, Rebstock 4-A..... 287 5210

Golden Meadows—

Texas Co., Golden Meadows 10,..... 255 5345

Grand Lake—

Amerada, State 5,..... 148 9657

Jefferson Island—

Texas Co., Jefferson Island Salt 4,.. 128 8498

Lafitte—

Texas Co., Bayou Norman 3,..... 473 9810

Lake Hermitage—

Gulf, Lafourche Basin District 11,. • 4047

Paradis—

Texas Co., L. L. E. Paradis 3,..... 958 10,212

Quarantine Bay—

Gulf, State 12-QQ,..... 456 8562

Sweet Lake—

Pure, Yount-Lee 15,..... 444 7607

Ville Platte—

Continental, Fontenot 6,..... 302 9013

Tate 1 ..... 380 10,235

White Castle—

Shell, Forest Home 1,..... 591 6618

Lafourche Parish—

Tide Water, Delta Farms 1, Delta Farms, 6-17s-23e,..... 212 11,305

St. Mary Parish—

Texas Co., State 1, West Cote Blanche, 16s-7e, ... 20 3136

Michigan

Allegan County—

Q. Devries Tr, Hutchins 1, nw ne sw 4-2n-16w ..... • 1299

Regis Cook, Wright 1, sw sw sw 9-3n-13w 60 1723

Jacob Bolema, Branderhorst, 1 ne ne ne 34-4n-14w..... 212 1591

Wiser Oil Co, Jurries 4, ne sw se 34-4n-14w 200 1491

N. R. Dodd, Schaap 1, ne ne sw 34-4n-14w 60 1480

Schaap 3, nw nw sw 34-4n-14w.. 165 1479

A. F. Shaw, Weber 1, se sw sw 1-4n-13w ..... • 1563

Floto & Devins, Winchester 1, sw se ne 14-4n-13w..... • 1670

Berrien County—

Shelbow Oil Co., Van Lente 1, se nw nw 35-4s-19w..... • 2571

Clare County—

Union Prod. Co., Riggs 1, c s sw se 11-19n-4w..... • 4235

Pure Oil Co.'s Bicknell B-15, c n se nw 28-19n-6w 190 3880

State-Sparrow B-1, se sw 29-19n-6w 165 3847

American Dr. Co., Newcomer 10, c s nw ne 32-19n-6w 600 3882

Isabella County—

Gulf, Burch 2, se ne sw 17-16n-3w.. 269 3754

Cities Service, Tubbs 1, nw sw se 17-16n-3w 550 3721

Cryden Pet. Co., Coyne 1, se ne sw 20-16n-3w ..... • 1515

Kent County—

Seaboard, Hodges 1, se sw se 22-5n-10w ..... • 2231

Smith & Storms, Dayton 1, se se ne 28-7n-12w 113 1850

Wolverine, Muth 1, se se nw 28-7n-12w ..... • 1975

Mesel & Spielbergs, Kniff 1, sw sw ne 29-7n-12w 60 1886

Certain-Teed, Fee 13, nw sw sw 34-7n-12w 200 1785

Davell Pet. Corp., Collins 1, ne nw ne 23-6n-12w 30 1919

Midland County—

Pure, Naramore 29, se nw nw 15-13n-1w 600 3338

C. L. Maguire, Clark 1, se se se 32-16n-2w ..... • 4663

Monroe County—

A. V. Oil Co., Beland 1, nw ne ne 30-6s-6e 125 2128

Oakland County—

Thos. Pendergrast, Moore 1, ne nw nw 28-1n-10w ..... • 594

Ottawa County—

Homer Fulton, Wittingen 1, se se se 28-6n-14w ..... • 1722

J. E. Flanigan, Gilhespy 1, nw ne nw 8-9n-13w ..... • 2588

Redman Oil Co., Heinz 1, sw nw se 27-5n-15w ..... • 1640

Twin Dr. Co., Keppel 1, se ne sw 27-5n-15w ..... • 495

Crown Dev Co.'s Bloemers 1, se ne nw 34-5n-15w ..... • 1643

Reimold 2, ne sw ne 34-5n-15w.. • 1555

Howard Fewler, Albrecht 1, nw sw nw 8-5n-13w ..... • 1732

Geo. Kernodle, Cook 1, nw se ne 23-7n-13w 100 1874

Basin & Snyders, Connell A-2, ne sw se 24-7n-13w 70 1974

Twin Dr. Co., McKay B-8, nw sw nw 24-7n-13w 50 1903

American Dr Co., Zokoe 4, nw se sw 24-7n-13w 75 1882

Century Oil Co., Riordian 4, se sw nw 25-7n-13w 60 1870

St. Joseph County—

Tom McDaniel, Ruchoft 1, sw sw sw 10-7s-12w ..... • 858

Van Buren County—

Bloomingdale Dev. Co., Decker 6, nw sw se 7-1s-14w 240 1207

C. J. Westlund, Moseman 1, ne sw ne 23-1s-15w 50 1184

Clapsaddle & Harris, Pepper 8, sw ne ne 23-1s-15w 40 1192

Michi-Oil Co., Watson 1, se sw ne 13-4s-14w ..... • 1112

L. P. Petersen, Fee 2, se sw se 14-4s-13w ..... • 1100

Montana

Toole County (Kevin-Sunburst field)—

Mosby Oil Co., Peterson 3, se ne se 7-35n-2w ..... • 1678

New Mexico

Eddy County—

Bert Aston & R. W. Fair, State 1-A se sw se 36-17s-29e..... 240 2767

Bassett-Birney et al, State 4-B, se sw nw 2-18s-29e 100 2638

Dixon-Yates et al, Ballard 2-A, nw se se 1-18s-29e..... 500 2811

R. W. Fair et al, Brainard 6, ne se se 10-18s-29e..... ¶4 2688

R. J. Johnson et al, Travis 2, ne sw nw 26-17s-27e..... • 562

Mex-Tex Supply Co. et al, Miller 2, c se nw 5-18s-29e..... 120 2730

Sallee-Yates et al, State 2, sec ne 2-18s-29e 1040 2708

Lea County (Eunice)—

Cities Service, Closson 6-AA, c nw se 18-22s-36e 2760 3835

Gulf, State-Leonard 2-C, c ne sw 36-21s-36e 339 3825

Lea County (Hardy)—

Stanolind, Hill 6-A, lot 11, 6-21s-37e 87 3750

Lea County (Langlie)—

Western Gas Co., State-Shell 1-B, cw½ ne nw 2-25s-37e..... ¶12.75 3439

Lea County (Lynn)—

T. P. Coal & Oil Co., State 8-A, c sw se 21-23s-36e..... 360 3646

Lea County (Mattix)—

Repollo Oil Co., State 2-E, 157, sw nw ne 32-24s-37e 275 3558

Lea County (Penrose)—

Skelly, Baker 2-B, c ne sw 10-22s-37e 144 3715

Lea County (Skelly)—

Skelly, Ellen Sims 5, nwc ne 3-23s-37e 82 3632

Lea County (Vacuum)—

Magnolia, State-Bridges 58, c sw sw 24-17s-34e 288 4600

Ohio, State-Warn 5, Acct. 2, nwc sw 6-18s-35e 1632 4694

Phillips, State-Santa Fe 37, c se nw 28-17s-35e 145 4671

United States Well Completions—*Continued*

New York

Company, Well and Location	Init. Prod. Bbls.	Depth
Allegany County—		
R. B. Moore et al, Curtis farm, Bolivar	7	1289
D. F. Allen et al, Richardson farm, Bolivar	4	1048
Forest Oil Co., Ackerman farm, Bolivar	16	1422
Messer Oil Co., Miles farm, Bolivar	9	1420
Cretekos & Vossler, Norton farm, Scio	7	1037
Bradley Prod. Corp., Monitor farm, Alma	5	1344
Monitor farm, Alma	5	1334
Pure Penn Oil Co., Gowdy farm, Scio	1	1327
Hill farm, Alma	4	1335
L. H. Thornton et al, Brown farm, Alma	7	1351
Wm. McEnroe et al, Jordan-Boyd farm, Greenwood	3	1362
Max Andrews, Burdick farm, Wirt	5	1353
A. C. Shaner Oil Co., Childs farm, West Clarksville	4	1263
Daggett Oil Co., Daggett farm, Genesee	4	1428
Messer Oil Co., Coon farm, Genesee	5	1410
Water (Intake) Wells—		
Forest Oil Co., Ackerman farm, Bolivar	...	1418
Andrews Bros. Oil Co., Minnum farm, Alma	...	1483
Otsquago Oil Corp., Pike farm, Alma	...	1384
Stout Cousin Oil Co., Brandes farm, Wellsville	...	1336
Willets & Paul Corp., Lot 22, Genesee	...	1540

Ohio

Company, Well and Location	Init. Prod. Bbls.	Depth
Licking County—		
McClay Bros., Claggett 2	¶1.00	2915
Wehrle Co., Parker 1	¶.80	2324
Medina County—		
E. R. Edson & Co., Brent 3	15	500
Muskingum County—		
Preston Oil Co., Williams 1	3	4240
Perry County—		
Gas Prod. Co. of Ohio, Lattimer 2	¶1.50	3110

Oklahoma

Company, Well and Location	Init. Prod. Bbls.	Depth
Caddo County—		
English Dr. Co., Covey 3, nw nw ne sw 11-5n-9w	2137	3404
Ohio, Wagner 9, ne sw sw 12-5n-9w	1994	3403
Carter County—		
Shell, Tubbi 30, se nwc 24-4s-3w (OTD 1090 ft.)	45	1220
Comanche County—		
Midnight Oil Co., Howe 1, nwc ne 20-2n-13w	•	997
Creek County—		
Wilcox, Johnson 3, nw ne ne 5-14n 10e (OTD 3238 ft.)	11	3344
Martin et al, Goodin 1, sw sw se sw 21-14n-10e	85	2823
Kirchner et al, Sparks 2, nw ne sw 18-17n-11e	¶5.	2279
Sparks 4, se nw sw 18-17n-11e	¶4.2	2268
Schamblin, Horaney 1, sw sw se nw 18-17n-11e	¶3	2261
Jackson, Grimes 1, sec nw 26-18n-7e	•	405
Swift, King 5, ne se sw 7-18n-10e	25	2012
Shaffer, Davidson 1, nw sw nw 30-17n-8e	•	2607
Garvin County—		
Sanders et al, Buckner 1, nwc sw 27-1n-2w	•	3004
Grady County—		
McCasland, Slusher 1, ne nec se 28-3n-5w (OTD 2204 ft.)	¶12	2685
Hughes County—		
Winona, Street 1, sw nw nw 16-7n-8e (OTD 2923 ft.)	¶0.1	2978
Jackson County—		
Ray, Mathis 1, se sw se 32-1n-19w	•	2762
Hanna-Eikner, Hardcastle 1, nwc sw 15-1n-20w	•	1580
Kerbo-Britton, Hunter 1, nec sw 6-1s-19w (OTD 2670 ft.)	•	2774
Kay County—		
Foundation Oil Co., Wheeler 1, nwc se 3-25n-3e	•	2662
Burke Development Co., Prunty 2, sw se nw 33-28n-3e	•	1364
Kiowa County—		
Fields et al, Oster 5, nw sw sw 27-7n-17w	•	809
Le Flore County—		
Le Flore G. & E. Co., Hickman 1, c ne se 8-8n-25e	•	5972
Lincoln County—		
Stanolind, James "B" 3, cel se sw sw 35-13n-5e	30	4243
Thornton, Stewart 2, nw se nw 15-13n-6e	185	4285
McClain County—		
Patsy, Richardson 1, se sw se 9-5n-3e	1752	3652
Richardson 2, ne sw se 9-5n-3e	360	3647
Simpson-Roodhouse, James 2, nw se se 9-5n-3e	500	3660
James 3, sec 9-5n-3e	1830	3640
Patsy, Caldwell 2, sw ne ne 16-5n-3e	840	3618
Okfuskee County—		
Summit, Steil 4, se se nw sw 18-10n-11e	2760	2176
Hall et al, Rentie 1-A, ne nwc sw 36-12n-11e	5	1288
Oklahoma County—		
I. T. I. O. Co., Little 4, sec ne 27-11n-3w (OTD 6625 ft.)	24	6646
Okmulgee County—		
Wallace, Colbert 2-A, se ne se nw 14-14n-14e	5	1090
Selby, Flint 13, nw sec nw 26-14n-14e	10	1055
Hollifield, Ashley 3-A, se nw nw 32-14n-14e	3	1300
Young Hart, 1, ne se nw sw 5-15n-14e	15	1629
Wright, McNotty 1, se nw se 23-16n-13e	•	1664
Vandeventer, Bloffer 1-A, nwc 34-17n-13e	¶0.5	632
Staley 3, se sw nw 34-16n-13e	¶0.04	700
Osage County—		
Peters et al, 3, se nwc se 4-23n-10e	¶3.9	2124
Oak Leaf, 2, nw se sw ne 16-28n-10e	3	1892
Stephenson et al, 1, ne sec 28-28n-10e	•	1470
Charles Petroleum Co., 2, nwc sw 10-28n-11e	18	990
McKnab, 1, nw ne sw 15-29n-8e	•	2600
Pawnee County—		
Wood, McCoy 1, nec sw 5-20n-9e	¶0.65	1819
Sand Springs, Dick 1, sw sw se se 21-20-9e	•	2671
Hemming 1, sw sw se sw 22-20n-9e	¶0.42	2072
Pontotoc County—		
Sinclair-Prairie, Burris 14, nec nw 27-2n-7e (OTD 3510 ft)	17	2720
Duckworth, Bowie 1, nw ne se 3-4n-3e	•	60
Gulf, Watson 3, sw nw ne 35-5n-4e	282	2595
Watson 4, nwc ne 35-5n-4e	590	2621
Superior, Summers 3, sw nw nw 36-5n-4e (OTD 2486 ft.)	225	2588
Pottawatomie County—		
Shaffer, Schroader 2-A, se nw se ne 6-6n-5e	•	2855
Pine, Huckleberry 1, c e½ nw ne 16-6n-6e	•	3668
Sinclair-Prairie, Nealey "B" 1, nw se sw 25-7n-4e (OTD 4515 ft.)	42	4270
Jenkins, Smith 2, se sw nw 21-7n-5e	107	2818
Alma, Keys 1, nec se 6-9n-5e	•	3050
Smith Brothers, Hanifan 1, se ne nw 24-11n-4e	•	5080
Berkey et al, King 1, c se sw 2-11n-6e	•	4630
Seminole County—		
Terry, Scroggins 2-A, ne ne sw ne 4-6n-6e	13	2866
Vallines, Church 1, sw nw se 36-7n-5e	•	3100
I. T. I. O., Barnett 2, swc nw 24-8n-6e (OTD 4404 ft)	¶0.4	4275
Commercial, Bird 1, ne nw sw 14-9n-6e	¶3.5	4086
Tulsa County—		
Moore, Griffith 1, swc 13-17n-12e	¶3	1856
Martin, Barnett 1, sw se se 13-18n-14e	•	1309
Mid-Continent, Koontz 4, nw se nw 10-19n-12e	¶2	1601
Wagoner County—		
Starnes, Mill 1, se sw se se 29-17n-15e	•	1180
Rule, Life 1, c n½ ne ne 34-18n-17e	¶0.49	302

Pennsylvania

BRADFORD DISTRICT

Company, Well and Location	Init. Prod. Bbls.	Depth
Corwin & Gallagher, Corwin	2	....
Underwood & Moody, Loop	1	....
Pine Run Oil Co., Bing 130-1-2-3-4-6	4	....
Tapp, Gallets & Buffington, Trs. fee	8	....
Mathew Lippert et al, Lippert	15	....
B. E. L. Oil Co., fee	2	....
Forest Oil Corp., 2 wells	2	....
Forest Pet. Corp., 2 wells	2	....
Niagara Oil Corp., 3 wells	3	....
Bradford Tr. Co., 11 wells	11	....
Water (Intake Wells)—		
Duffytown Oil Co., Sullivan	...	....
Forest Oil Corp., 2 wells	...	....
Forest Pet. Corp., 3 wells	...	....
Niagara Oil Corp., 3 wells	...	....

MIDDLE DISTRICT

Company, Well and Location	Init. Prod. Bbls.	Depth
Grimm & Light, Cocks	1	....
J. B. Perry, Sherick	4	....

SOUTHWESTERN PENNSYLVANIA

Company, Well and Location	Init. Prod. Bbls.	Depth
Indiana County—		
Equitable Gas Co., Raraigh 3253	¶.08	3508

West Central Texas

Company, Well and Location	Init. Prod. Bbls.	Depth
Callahan County—		
W. D. Austin et al, Yarbrough 1	4	303
J. R. Hart et al, George 3	•	761
O. Stutenroth et al, Slaughter 1	•	471
Trumter Pet. Corp., Slaughter 1	51	380
Slaughter 2	43	379
Slaughter 3	19	391
Valley-Osage Oil Co.-H. T. D. Prod. Co., Slaughter 7	•	538
Comanche County—		
St. John & Choate, Henry 1	15	637
Jones County—		
Sandy Ridge Oil Corp., Alton-Magnolia 3	271	1910
Jones County (Wildcat)—		
Merry Bros. & Perini, Inc., Hodges 1	•	2104
Palo Pinto County—		
Palo Pinto O&G Corp., Strawn 18-B	¶2.8	3025
Shackelford County—		
Browne et al, Simpson 1	•	653
A. P. Schkade et al, Godwin 1	•	881
Thos. Wittmer et al, Jackson 1	•	936
Stephens County—		
T. G. Shaw, Tr, Stroud 2	15	2591
Stroud 3	65	2591
Greathouse et al, Robertson 1	2575	3572

North Texas

Company, Well and Location	Init. Prod. Bbls.	Depth
Archer County (Hull-Silk)—		
Barnes & R. P. Traugh, Carson 3-B	1800	4370
J. A. Chapman-McFarlin, Little 1-A	1608	4400
Wilson 9-C	1298	3868
Continental, Wilson-McCrory 11	1408	4363
A. R. Dillard-White-Duncan, Nichols 4	896	4394
Helmerich & Payne, Shephard 5	720	4326
Bert Ligon et al, White 2-A	520	4421
Petroleum Prod. Co., Johnson 1-A	1584	4330
White 1	1056	4422
Louis Sikes et al, Mahler 1	360	4422
Miller-Martin 2-A	76	4436
Southern Pet. Explo., Inc., Carson 1	792	4345
Archer County—		
W. B. Hamilton et al, Wilkins 4-A	55	1142
C. T. Hedges et al, Harmel 17-C, sec 2401	2	1289
Bert Ligon et al, White 4-D	28	501
Rancho Oil Co., Prideaux 17	7	666
Panhandle Ref. Co., Green 4-C	52	1133
Archer County (Wildcats)—		
L. T. Burns et al, Meurer 1	•	1228
Deep Rock, McCarty 1	•	5326
Hedrick Oil Co. et al, Wilson-McCrory 1	•	4810
Shappell Oil Co., Hale 1	•	1404
Stuckey O.&G. Co. Benson 1	•	885
Baylor County (Seymour)—		
British-American O.P. Co., Seals 3	736	2563
Clay County (Wildcats)—		
Apache Oil Co., Henderson 1	74	1141
O. N. Childs et al, Heard 1	•	1350
White & Austin, Hansard 1	•	1359
Cooke County—		
Seitz-Comegys & Seitz, Flusche 2	•	1557
S. S. Staley et al, Voth 4	•	1767
Cooke County (Walnut Bend)—		
Magnolia, Ramsey 3	302	4728
Sinclair Prairie, McGeorge 9	1416	4927
Cooke County (Wildcat)—		
G. V. Minnich et al, Stout-Brewer 1	•	1905
Mudge Oil Co., Bonner 1	•	2180
C. E. Sykes et al, Hill-Christian 1	•	3165
Hardeman County (Wildcat)—		
Roy I. Carter et al, Norton 1	•	2024
Jack County—		
Dallas Roy. Co., Gahagan 1	•	3220
Montague County—		
Claymont Oil Co., Bouldin-Texaco 1	54	819
Geo. G. Golden et al, Bouldin 3	25	818
Montague County (Benton-Holmes)—		
United Producers-Continental, Langford 2	•	3834
Montague County (Nocona)—		
L. S. Youngblood-R. L. Foree, Hillcrest 1 (pb to 4680 ft)	100	5405
Wichita County (K-M-A)—		
Deep Oil Dev. Co., Munger 23-A blk 31	256	3880
Fain-McGaha Oil Corp., Griffin 15-B	1016	3820
P. G. Lake, Inc., Griffin-Reilly 7	360	3970
Sunray Oil Co., Mangold 11	1144	3790
Wichita County—		
F. A. Dickenson et al, fee 15	25	900
W. B. Hamilton et al, Martin 7-A, sec 36	10	550
Martin 2-E	12	560
Wichita County (Wildcat)—		
G. P. Davis et al, Van Houston 1	•	265
Wilbarger County—		
Lawsonia, Inc., Waggoner Est. 1-BB, sec 50	•	1315
Phillips, Waggoner-King 4, sec 63	560	3207
Staley-Wynne Oil Co., Waggoner Est. 21-G	215	2445
Young County—		
Henry Craig et al, Taack 1, sec 248	11	698
Chas. E. Knox et al, Worsham 6	7	2729
Jas. Touhy et al, Akers 1	¶15.75	4082

United States Well Completions—*Continued*

East Texas

Company, Well and Location	Init. Prod. Bbls.	Depth
Kilgore Area—		
C. O. Christian et al, fee 3 (3-1/3-ac)	3000	3697
Pat O'Brien et al, King 2 (½-ac)..	360	3645
W. B. Pearce et al, Borders 3 (39/100-ac)	600	3560
Longview Area—		
Coastal Dev. Co., Flewellen 19 (200-ac)	750	3643
B. F. Phillips et al, Everett 1 blk 15 (10.29-ac)	1500	3616
Stanolind, McGrede 2 (6.44-ac)....	3600	3651
Angelina County—		
Ginter & Co., Cope 7	10	2232
Houston County (Wildcat)—		
Shell, Dorsey 1	*	10,900
Titus County (Talco)—		
V. A. Hughes & Co., Flannigan-Shell 5	325	4342

Texas Panhandle

Company, Well and Location	Init. Prod. Bbls.	Depth
Carson County—		
J. M. Huber Corp., Burnett 11-R...	216	3093
Shell, Cooper 8-A	218	3207
Gray County—		
Gulf, Saunders 11-A	243	3036
Magnolia, fee (tract 227) 30	130	2860
Hutchinson County—		
Gibson Oil Corp, Harvey Sisters 2	175	3003
Harvey Sisters 3	50	2989
Harvey Sisters, 4	75	2983
Gulf & Panhandle Ref. Co., Dial 95	210	3014
Phillips, Thompson 13	142	3291
Cy Rieger et al, Herring 2	159	3210
Texas Co., Lewis 20	480	3010
Moore County—		
Phillips, N. McDade 1	¶10	3410

South Texas

CORPUS CHRISTI DISTRICT

Company, Well and Location	Init. Prod. Bbls.	Depth
Aransas County—		
F. A. Gillespie & Sons, Clark & Hill 1 (McCampbell)	350	7285
Tom Graham Oil Co., McCampbell 1-G (WC) James McKay sur....	*	7828
Calhoun County—		
Tex-O-Cal Oil Co., Brundett 1 (WC) William Little sur	*	5021
DeWitt County—		
Delmar Drillers, McCurdy 1 (WC) 3 mi n of Cuero	*	3506
Hidalgo County—		
Homer P. Lee et al, Yturria T & I Co. 1 (lse 2) (WC) Por 42	*	4514
Jackson County—		
Lonnie Glasscock, Drummond 2-B (West Ranch)	1500	5775
Humble, Toney 8 (West Ranch)...	1250	5523
Magnolia, Nannie B. West 59-A (West Ranch)	1000	5131
Nannie B. West 63-A West Ranch)	1250	5597
Nannie B. West 64-A (West Ranch)	1300	5115
Nannie B. West 65-A (West Ranch)	1000	5579
Jim Wells County—		
Arkansas Fuel Oil Co., McNeil 1 (Wade City)	750	4955
Rodney Delange, McNeill 4 (Wade City)	900	4942
Frank J. Gravis, Muil 5 (Clark-Muile)	5 & ¶2.00	5711
Heyser & Heard, Ramon V. de Garcia 3 (Ben Bolt)	750	5414
H. H. Howell et al, Bienstadt 1 (WC) I & G N sur 501	*	5634
Harry Mosser, Fee 1 (Reynolds)..	*	5607
Republic Nat. Gas. Co., Adams 1-C (Alfred)	*	5307
Texas Gulf Producing, Gallagher 1 (WC) Casa Blanca gr.	*	6275
Karnes County—		
R. W. Ford & Crown Central Petroleum Corp., Jendrusch 1 (WC) E. Seguin gr.	*	2510
Nueces County—		
Hauser, Warren & Ginther, Davis 1 (WC) sec 159	*	7524
O. W. Killam, Webb 5 (Clara Driscoll	400	5200
Nueces Roy. Co., Rutland 1 (Clara Driscoll)	¶5	5040
Phillips, Gandy 3 (Minnie Bock)..	*	4110
Union Producing, Ingram 2-B (Agua Dulce)	*	7360
Wellington Oil Co., Dugger 14 (S. Clara Driscoll)	600	6750
Refugio County—		
Hewit & Dougherty, Rooke B-10 (La Rosa)	325	6340
Quintana Oil Corp., Williams 20-A (Tomoconner)	1250	5925
San Patricio County—		
Bay-Tex Oil Co., Anderson & Trout 1 (McCampbell)	225	7503
Houston Oil Co. of Texas, Baldwin et al 10 (E White Point)	500	5709
Plymouth Oil Co., Hutto et al 1-A (E White Point)	*	5702
Republic Nat. Gas Co., Rachal 29 (E White Point)	650	5647
Southern Minerals Corp., McCampbell Est. 4 (McCampbell)	400	7520
H. H. Wegener et al, Farley 2 (McCampbell)	350	7175
Victoria County—		
Barnsdall, Pickering et al 14 (Placeda)	500	6240
Houston Oil Co., Reeves A-1 (Cologne)	¶5	2870
E. R. Kirkpatrick, Deavers 1 (Victoria)	500	3055

LAREDO DISTRICT

Company, Well and Location	Init. Prod. Bbls.	Depth
Duval County—		
Chas. Andrus & Reed, Peters 1 (Rancho Solo)	70	1855
Andrus Reed & Beason, Peters 1-A (Rancho Solo)	*	1799
Cox & Hamon & Gorman-Yoakam, Humble-Peters 2 (Rancho Solo)..	75	1804
Hoffman 3 (109) (Tarancahuas)	175	2054
Hoffman 5 (109) (Tarancahuas)	250	2059
Highland Oil Co., Hubbard 17 (Loma Novio)	*	3012
Humble, Duval County Ranch Co 7-F (Cedro Hill)	35	1442
Landreth Prod. Co., Robinson (WC) Paul Henry sur	*	5320
Magnolia, Hahl 5 (Government Wells)	*	2972
Well et al 1 (561), (WC) B S & R sur	*	3217
Westland Oil Co., Tom Graham 3 (Chiltipen)	*	5054
Hidalgo County—		
Mid-Valley Oil Co., Kelly Est. 1 (WC) Por 69	*	1500
Starr County—		
W. R. Davis Co., Slick Est. 16-B (Rincon)	750	4283
Humble, Montalvo 1 (Sun)	450	4933
T. E. Stephens & H. Rouw, Ysidrio Garcia de Garcia 1 (WC) Por 71	*	650
Sun, Augustine Olivarez 6-A (McKinney)	350	4960
Webb County—		
J. M. Anderson, De La Garza Est 1 (Carolina-Texas)	*	2536
Magnolia, Volpe-Benavides 26 (Volpe)	350	2477
Howard Nessly, Kirkpatrick 1 (WC) sur 59	*	2085
V. G. Schimmel, Volpe 1 (WC) sur 698	*	4103
The Texas Co., Kirkpatrick 1 (WC) sur 31	*	1900
Zapata County—		
Dulup Oil Co., I. B. de Garcia 6 (Escobas)	*	1387
Interstate Minerals, Lopez 41 (Mirando Valley)	125	1720

SAN ANTONIO DISTRICT

Company, Well and Location	Init. Prod. Bbls.	Depth
Atascosa County—		
Jno. J. Durst, Wright 1 (WC) J. Rountree sur	*	1215
Caldwell County—		
R. H. Keau, Alexander 2 (Buchanan)	*	....
Medina County—		
Charles H. Wagner et al, Medina Irrigated Farms A-47 (Chicon Lake)	*	403
Guadalupe County—		
E. A. Weyel, Mattke 2 (Elm Creek)	6	720
Travis County—		
J. C. Tittle, Darlington 1 (WC) O. Buckman sur	*	750
Williamson County—		
Taylor Ref. Co., Hurta 2 (WC) Parthinia Coursey sur	*	1398
Wilson County—		
Henshaw Bros. et al, Schneider 1 (WC) Dan Gasper Flores sur....	*	3535
Zavala County—		
H. F. Wilcox O. & G. Co., Storey 2 (WC) G W T & P sur	*	4320

Texas Gulf Coast

Company, Well and Location	Init. Prod. Bbls.	Depth
Clear Lake—		
Humble, Humble-West Fee C-38...	151	5908
Dickinson—		
Humble, Leake 3	¶2.	9034
Esperson—		
General Crude, Fee B-11	96	6970
Fairbanks—		
Gem Oil Co., White 4	50	6832
Joe's Lake—		
Republic, Hurd 34	410	7690
Magnet—		
McDannald, Franz 1	138	5548
Rosenberg—		
Fred Browning, Socha 1	33	7734
Segno—		
Gulf, Wing 31	508	8090
Spurger—		
Republic, Sterre 1 (wo)	502	4685
Thompson—		
Quintana Pet. Corp., Wolters 8-B..	108	5445
Van Vleck—		
Skelly, Cobb B-18	215	7495
Withers—		
Texas Co., Thompson A-18	93	5541
Harris County—		
Harry McCormick et al, Green Bayou 1, se of Clinton, S. C. Hiroms sur	*	6513
Rowan & Nichols, Lobit 1, Cedar Bayou area, B. Barrows, sur....	*	7351
Tyler County—		
Louis Franklin, Hayes 1, J. C. Boyett sur, (wo)	*	5523

West Texas

Company, Well and Location	Init. Prod. Bbls.	Depth
Andrews County (Means)—		
Humble, J. S. Means 75	373	4510
Crane County (McCamey)—		
Texas Co., King 45	67	2395
Ector County (Foster)—		
Atlantic Ref. Co., Johnson 6-B....	472	4280
Stanolind, Witcher 33	693	4215
Sinclair Prairie, Johnson 1-C....	477	4206
Ector County (Goldsmith)—		
Gulf, Goldsmith 261	2094	4208
Goldsmith 263	341	4202
Phillips-Pure, Cowden 79	1108	4182
Ector County (Jordan)—		
Shell, University 2-B	1207	3650
Snowden-McSweeney Co., University 2, lse 2	1628	3552
Ector County (North Cowden-Holt)—		
Landreth Prod. Corp., T. P. Land Trust 2-A (dd from 4275 ft)....	45	5196
Ector County (North Cowden)—		
Texas Co., O. B. Holt 1	334	4430
Gaines County (Seminole)—		
Atlantic Ref. Co., Riley 3-B	774	5276
Magnolia-Atlantic, H. & J. 2-195..	551	5242
Howard County (Wildcat)—		
M. L. Richards et al, Shaffer 1....	*	3057
Pecos County (Lehn)—		
Sahara Oil Corp., Sullivan 6-B....	42	1745
Pecos County (Pecos Valley)—		
Union Oil & Min. Co., 1st Natl (Ft. Stockton) Bank 3	10	2335
Scurry County—		
Blue Streak Oil Co., Sterling 1....	*	3500
Scurry County (Sharon)—		
Helmerich-Payne, Martin 5	60	2470
Upton County—		
Basin Oil Properties, Baker-Gulf 9-B	533	2223
Tom Green County (Wildcat)—		
L. D. Gibson et al, Pugh 2	*	305
Ward County—		
Gulf, O'Brien 129	62	2885
A. E. Lynch et al, Miller-Reynolds 1	124	1945
Magnolia, Sealy 4-43	*	2935
Yoakum County (Wasson)—		
Denver Prod. & Ref. Co., Whittenburg 9-A	1143	5128
Helmerich-Payne, Dowell-Ohio 4..	932	5090
Honolulu Oil Corp., Wilder 10-804	†	3154
Humble, Wooten 26	830	5115
Oil Development Co., Willard 4-763	497	5215
Magnolia, Mahoney 11	1330	5180
Shell, Baumgart 7-D	1480	5130
Brand 3-A	999	5056
Skelly, Kendrick 4	1344	5150

West Virginia

Company, Well and Location	Init. Prod. Bbls.	Depth
Braxton County—		
Pittsburgh & W. Va. Gas Co., Nottingham 7716	*	2802
Calhoun County—		
C. A. Jarvis et al, McDonald 1....	5	2221
Gilmer County—		
A. E. Ellis et al, Lockhard 1....	¶.50	1877
Lincoln County—		
Russell Gas Co., Linville 1	¶.15	3708
Monongalia County—		
J. I. Eddy et al, Fetty 1	¶	3075
Ritchie County—		
Phillip Lemon, Scott Hrs. 1	2	1601
Tyler County—		
S. J. McIntyre & H. R. Wright, Wright 1	1	2245
Wayne County—		
Swanson & Summerson, Adkins 1..	¶.29	3054

Wyoming

Company, Well and Location	Init. Prod. Bbls.	Depth
Niobrara County (Lance Creek field)—		
Continental, Schuricht 6-A, se ne se 6-35n-65w	1834	5341
Ohio, Rohlff 6, se nw ne 32-36n-65w	*	5739
Sublette County (LaBarge field)—		
No. LaBarge Oil Co., Government 1, sec ne se 8-27n-113w	50	2100

Seek repressuring at Kermit

A hearing has been scheduled by the Texas Railroad Commission for April 10, at Austin, on application of Illinois Oil Company for a repressuring permit for the Yates Sand of the Kermit field, Winkler County.

WILDCAT REPORT
New Starts and Completions

ALABAMA
FIRST REPORT

Green County—Edgar C. Johnston's Bauchelie 1, 5 mi se Boligee, materials.

ARKANSAS
FIRST REPORT

St. Francis County—D. T. Hargraves's Welford 1, ne se se 29-4n-1w, materials for 4500 ft test.

COMPLETIONS

Columbia County—J. M. Forgotson et al's Dendy 1, c sw sw 24-17-19, elev 249 ft, 13⅜-in csg 120 ft, 9⅝-in csg 2235 ft, salt water, abnd 7768 ft in Smackover lime.

Craighead County—Tenn-Ark, Inc.'s Ruby Martin 1, 580 ft s and 80 ft w NEc 35-14n-3e, abnd 5092 ft.

CALIFORNIA
COMPLETIONS

Kern County—Wood-Callahan's Heyden 1; Section 21-30-29; bottomed 4370 feet; cleaned out 3620 feet, 250 feet of 5¾-inch including 202 feet perforated, landed 3615 feet, completed on pump 125 barrels daily, 18.6 gravity, cut 1 percent.

Edison Area—Franco Western Oil Co.'s No. 17, Section 8-30-22, bottomed 2214 feet, completed on pump 215 barrels 20 hours, 19.5 gravity, cut 3.5 percent.

McKittrick Area—Shell's KCL 2-A-52-13, Section 13-11-22, bottomed 13,873 feet, plugged to 12,027 feet, perforated 10,790-770, 10,740, 10,720, 10,640, 10,620, 10,600 and 10,590 feet, tested wet, perforated 10,590, 10,570, 10,360, 10,355, 10,330 and 10,310 feet, tested wet, perforated at 9300 feet, flowed 239 barrels salt water, abnd.

COLORADO
COMPLETION

Larimer County—L. R. Steele et al's Nundt 1, ne ne 7-3n-69w, abnd 2135 ft thru Hygiene shale, water, South Berthoud structure, Central Colorado.

KANSAS
FIRST REPORTS

Barton County—McMorrow et al's Tonkin 1, swc 4-20-12w, lcn.

Butler County—Timm's Kelley 1, se nw sw 20-27-4e, otd 2660 ft, dr 2975 ft.

Cowley County—Shawver's Widener 1-B, c s½ se nw 11-30-4e, dr. Hartman et al's Falkingham 1, cnl nw se 22-30-4e, dr.

Ellsworth County—Pryor et al's Stratman 1, c w½ nw nw 1-17-10w, lcn.

Leavenworth County—Wamhoff et al's Maduska 1, c se ne 36-8-20e, dr.

McPherson County—Aladdin Pet. Co.'s Bitikofer 1, cnl ne nw 1-20-1w, dr 2500 ft.

Rooks County—Mitchell Dr. Co.'s Vererka 1, csl se se 21-8-19w, mim.

Russell County—Simpson et al's Deines 1, cwl nw sw 33-14-14w, dr.

COMPLETIONS

Barton County—Phillips Pet. Co.'s Wondra 1, c w½ sw ne 15-17-12w, Wondra pool discovery, Lansing 3049 ft, Arbuckle 3316 ft, td 3325 ft, pb 3054 ft, acidized Lansing 1500 gals, 101 bbls, 38-gr.

Cowley County—Atlantic Ref. Co. et al's Smith 1, sec nw 33-33-4e, 1 mi e Arkansas City gas pool, Arbuckle 3699 ft, abnd 3736 ft. C. F. Myers et al's Dunn 1, nwc 33-34-5e, 7 mi se Arkansas City gas pool, Arbuckle 3469 ft, abnd 3510 ft.

NORTH LOUISIANA
FIRST REPORT

Caldwell Parish—Arkansas Fuel Oil Company's Louisiana Central Lbr. Co. 1, nw sw 31-12n-3e, to plug back and test Wilcox, old td 7528 ft.

SOUTH LOUISIANA
FIRST REPORT

Cameron Parish—Superior's Calcasieu Lake State 2, Calcasieu Lake, Section 1-14s-9w, lcn.

COMPLETIONS

Lafourche Parish—Tide Water's Delta Farms 1, Delta Farms area, 6-17s-23e, 212 bbls daily, 11,305 ft.

St. Mary Parish—Texas Co.'s State 1, West Cote Blanche, 16s-7e, 20 bbls daily, 3136 ft.

MICHIGAN
FIRST REPORTS

Allegan County—Century Oil Co.'s Schaap 1, nw nw ne 2-4n-15w, rig. Vahue Oil Co.'s Grotenhuis 1, se sw sw 3-4n-15w, lcn.

Barry County—Strange Oil & Gas Co.'s Golden 1, nw ne sw 31-3n-7w, dr. Smith Pet. Co. and R. B. Newcombes' Hall 1, nw sw se 5-4n-9w, rig.

Kent County—Sun Oil Co.'s Huyser 1, ne sw nw 12-5n-11w, rig.

Mecosta County—Taggart Bros.' Wachter 1, se se nw Section 29-16n-10w, lcn.

Ogemaw County—Weber Oil Co.'s State 1, ne ne 25-24n-1e, rig.

Osceola County—Rowmor Corp.'s Vallad 1, ne ne 25-20n-7w, dr.

COMPLETIONS

Allegan County—Q. Devries Tr.'s Hutchins 1, nw ne sw 4-2n-16w, Traverse 1292 ft, so 1293 ft, abnd 1299 ft.

Berrien County—Shelbow Oil Co.'s Van Lente 1, se nw nw 35-4s-19w, Traverse 689 ft, sg 1510 ft, Trenton 1935 ft, abnd 2571 ft.

Clare County—Union Dr. Co.'s Riggs 1, c s sw se 11-19n-4w, Dundee 4163 ft, abnd 4235 ft.

Kent County—Seaboard Oil Co.'s Hodges 1, se sw se 22-5n-10w, Traverse 1882 ft, Dundee 2165 ft, Monroe 2208 ft, sg 2228 ft, abnd 2231 ft.

Midland County— C. L. Maguire, Inc.'s Clark 1, se se se 32-16n-2w, Dundee 3726 ft, Monroe 3960 ft, so 4544 ft, abnd 4663 ft.

Oakland County — Thomas Prendegast's Moore 1, ne nw nw 28-1n-10w, abnd 594 ft.

Ottawa County—Homer Fulton's Wittingen 1, se se se 28-6n-14w, Traverse 1650 ft, abnd 1722 ft. James E. Flanigan's Gilhespy 1, 8-9n-13w, Traverse 2057 ft, Dundee 2448 ft, sg 2451 ft, abnd 2588 ft. Howard E. Fowler's Albrecht 1, nw sw nw 8-5n-13w, Traverse 1710 ft, abnd 1732 ft.

St. Joseph County — Tom McDaniel's Ruchoft 1, sw sw 10-7s-12w, Traverse 847 ft, td 858 ft.

Van Buren County—Michi-Oil Company's Watson 1, se sw ne 13-4s-14w, Traverse 1085 ft, abnd 1112 ft. Lewis Petersen's Farm Fee 2, se sw se 14-4s-13w, abnd 1100 ft.

MISSISSIPPI
FIRST REPORTS

Humphreys County — Lyons & Neely's (Shreveport) Kern 1, c nw sw 4-13n-4e, materials 5000 ft test.

Oktibbeha County — N. W. Shiarella's (Owensboro, Kentucky) Murphy 1, nw nw 28-17n-12e, materials.

Yalabousha County—Stewart Oil Co.'s (Tyler, Texas) Ruth Creekmore 1, 1980 ft s & w nec 21-24n-7e, materials.

COMPLETION

Warren County—W. O. Allen's Culley 1, 1980 ft n & e Culley tract, sec 16-14n-3e, elev 203 ft, Wilcox 2885 ft, salt 4025 ft, abnd 4490 ft. (Glass Dome test).

NEW MEXICO
FIRST REPORT

Eddy County—Gordon M. Cone et al's Hare 1, nwc ne 14-16s-28e, lcn.

OKLAHOMA
FIRST REPORTS

Hughes County—Southwestern Dr. Co.'s Diamond 1, c e½ nw se 33-9n-9e, rig.

Logan County—Kerlyn Oil Co.'s Chitwood 1, nec sw 15-16n-4w, rig.

Okfuskee County—Yoakum et al's Replogle-Johnson 1-A, nwc ne 11-11n-10e dr.

COMPLETIONS

Hughes County—G. Pace et al's Cahill 1, c e½ ne sw 2-6n-8e, 3 mi e Spaulding pool, Senora 1320 ft, Booch 2753 ft, Calvin 757-75 & 810-40 ft, perf 10 shots 805-20 ft, mud, abnd 2773 ft.

Lincoln County—Jones Associated Oil Co.'s Warren 1, nwc sw 28-15n-5e, 2 mi nw Davenport field, Avant 2020 ft, Belle City 2130 ft, Hogshooter 2445 ft, Checkerboard 2720 ft, Oswego 3473 ft, Prue 3493 ft, abnd 3539 ft, no show.

Pottawatomie County—Kerlyn Oil Co.'s Askew 1, nw ne ne 17-7n-5e, new horizon St. Louis pool, otd 2852 ft, Earlsboro 3125 ft, td 4357 ft, pb 3410 ft, perf 3329-34 and 3298-3303 ft, flowed 78 barrels in 24 hours, 3 percent water.

Seminole County—Stanolind's Aldridge 2, nw ne se 32-9n-8e, N. Wewoka pool discovery, first Wilcox 4370 ft, td 4394 ft, 450 bbls 40,7-gravity oil, 165,000 cu ft gas, tubing pressure 50 pounds.

Wagoner County—Cahill's McCall 1-A, nec 10-17n-15e, Goble district, abnd 1155 ft.

WEST TEXAS
FIRST REPORTS

Crockett County—Clark-Cowden Drl. Corp. et al's Atwood 1, c ne ne GC&SF sec 49, blk HH, lcn.

Pecos County—H. H. Sides et al's Blackstone-Slaughter & Lackey 1-A, T&St. L. sec 29, blk 129, dr 275 ft.

COMPLETIONS

Howard County—M. L. Richards et al's Shaffer 1, se se se H&TC sec 32, blk 25, elev 2359 ft, anhydrite 840 ft, salt 860 ft, Yates sand 1233 ft, Yates frosted grains 1250 ft, abnd in sul w 3057 ft.

Tom Green County—L. D. Gibson et al's Pugh 2, Jas. Eldridge sur 73, abnd 305 ft.

SOUTH TEXAS
FIRST REPORTS

Bastrop County—J. L. Collins & Co.'s Powell 1, J. G. Welchmeye sur, 3 mi nw Red Rock fld, sp. August Bering, Jr., et al's Rivers 1, 80 ac lse out of 163 ac tr, B. Osborne sur.

Duval County—Alaska-Texas Oil Co.'s Peters 2, B. S. & F. sur 761, 2000 ft e and 2000 ft s of No. 1, 2 mi e Lopez fld, skid on.

Fayette County—F. J. Hynes' Kerr, Jr. 1, 162 ac tr, John Parrott sur, 4 mi nw Flatonia, dr 2965 ft.

Guadalupe County—Knute Evjen's Brawner 2, John D. Rains sur, 1000 ft se No. 1, lcn.

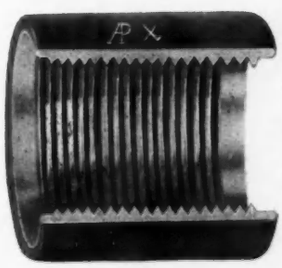
Jackson County—A. E. Masterson & R. B. Swiger's Henderson 1, sec 22, P. Scott sur, Sun farmout, 2 mi ne Texana fld, lcn.

Jim Hogg County—J. L. Collins & Co.'s Palacios 1, blk 19, D. G. Duce sur 287, 1 mi e Randado fld, mov in rig, replaces former Wheelock & Collins well. Humble's Mestina O. & G. Co. 4 (6), San Antonio Baluarte gr, 10 mi se Hebbronville, drl 5190 ft.

Jim Wells—Henshaw Bros. & Atlantic Ref. Co.'s Blashke 1, 250-ac tr in San Antonio de Agua Dulce gr, 1½ mi s Wade City fld, sp. H. H. Howell et al's Perez 1, lot 13, sec 9-N, Cushing O. & G. subd, Manuel Barrera gr, 5 mi nw of Alice, sp.

Kimble—E. E. Sorey's Baker 1, B. Underwood sur 443, 1½ mi ne of Junction, lcn.

Starr—R. C. Hillman's Gonzales Hrs. 1,



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Travis—J. H. Sprouls & A. G. Hinn's Balm 1, 565-ac tr, Santiago Del Valle gr, 4 mi e Austin, lcn.

Victoria—Humble's Jay Welder 1, M. G. Railway sur 9, 3 mi n of nursery, rigging up. Colton & Colton's Wray 1, T. & N. O. sur 4, ab-441, 9 mi n and e of Telferner, lcn. Colton & Colton s Terrell 1, sw 125 ac of 250-ac tr, John B. Sideck sur, 2 mi of Buckholtz, lcn.

Zapata County—Hiram E. Hall's Slator 1, blk 89, Mission Oil Co. subd, Slator Pasture, Barrego gr, lcn.

COMPLETIONS

Aransas County—Tom Graham Oil Co.'s McCampbell's 1-G, blk 19, McCampbell Ranch subd, James McKay sur, 1¾ mi ne McCampbell fld, abnd 7828 ft.

Atascosa County—J. J. Durst et al's Wright 1, 102-ac tr, J. Rountree sur, abnd 1215 ft.

Calhoun County—Tex-O-Cal Oil Co.'s Brundett 1, tr 8, subd of Brundett Lands, Wm. Little sur in extreme sw/cor of county on Matagorda Island, lot 294, temp abnd 5021 ft.

DeWitt County—Delman Drillers' McCurdy 1, 3 mi n Cuero, temp abnd 3506 ft.

Duval County—Landreth Prod. Co.'s Robinson 1-A, n½ of s½ Paul Henry sur 116, 5 mi nw San Diego, 2 mi ne Thomas Lockhart fld, sand, oil odor, 4764-66 and 4862-80 ft, Jackson 3688 ft, Hockley 3964 ft, Cockfield 4795 ft, Pettus 4860 ft, abnd 5320 ft. Magnolia's A. Weil et al 1 (561), B. S. & R. sur 561, 1 mi nw of sw edge of Hoffman fld, sand 2735-55 ft, abnd 3217 ft.

Hidalgo County—Mid-Valley Oil Co.'s Kelley Est 1, 40-ac tr, blk 226, Kelly-Pharr subd por 69 elev 90 ft gr, may move in another rig and drill deeper, temp abnd 1500 ft. Homer P. Lee et al s Yturria 1, por 42, 2700 ft n line second 1000-ac lse, abnd 4514 ft.

Jim Wells County—H. H. Howell et al's Bierstadt 1, lot 30, A. J. Lander farm on Arkansas Fuel farmout, lots subd, I & G N sur 501 ab-246, 2 mi w Orange Grove, abnd 5634 ft. The Texas Gulf Producing Co.'s Gallagher 1, n¼, blk 16, J. H. Gallagher subd, Casa Blanca gr, 4 mi se Sandia, abnd 6275 ft.

Karnes County—R. W. Ford & Crown Central's Jendrusch 1, 75-ac lse E. Seguin gr, 1½ mi sw Falls City, sand 1955-65 ft, abnd 2510 ft.

Nueces County—Houser, Warren & Ginther's Davis 1, s½ nw¼ sec 159, F. Z. Bishop subd, Well ranch, 3 mi w Bishop, abnd 7524 ft.

Starr County—T. E. Stephens & H. Houw's Ysidrio Garcia de Garcia 1, 12 mi n Roma, sands 389 ft and 407 ft, abnd 650 ft.

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CADILLAC SQUARE BETWEEN CITY HALL AND COUNTY BUILDING

Travis County—J. C. Tittle's Darlington 1, O. Buckman sur, 4 mi ne Hornsly, Austin chalk 750 ft, abnd 750 ft.

Webb County—Howard Nessly's Kirkpatrick 1, n½ of nw¼ sur 59, 6 mi nw Lopez fld, 25 mi n Bruni, sds 1479-90 and 1500-08 ft, abnd 2085 ft. V. G. Schimmel's Volpe 1, sur 698, 3 mi w Volpe fld, 6 mi nw of Bruni, abnd 4103 ft. Texas Co.'s Kirkpatrick 1, se¼ sur 31, C. C. S. D. & R. G. N. G. R. R. Co, blk 1, 3 mi nw Lopez fld, abnd below 1900 ft.

Williamson County—Taylor Rfg Co.'s Hurta 2, Parthinia Coursey sur, 1½ mi se Taylor, Edward 1388 ft, abnd 1398 ft.

Wilson County—Henshaw Bros. et al's Schneider 1, 400-ac tr, D. G. Gasper sur, abnd 3535 ft.

Zavala County—Wilcox O. & G. Co.'s Storey 1, sec 19, GWT & P sur, Ed lime 4199 ft, abnd 4320 ft.

TEXAS GULF COAST

FIRST REPORT

San Jacinto County—Shell's Coline 1, 1320 ft n NEc 75-ac tract and 466 ft w of e line of J. Rankin sur, lcn.

COMPLETIONS

Harris County—Harry McCormick et al's Green Bayou 1, se Clinton, S. C. Hiroms sur, abnd 6514 ft. Rowan & Nichol's Lobit 1, Cedar Bayou area, B. Barrow sur, abnd 7351 ft.

Tyler County—Louis Franklin's Hayes 1, LeGrande area, J. C. Boyett sur, abnd 5523 ft.

WEST CENTRAL TEXAS

FIRST REPORTS

Callahan County—C. A. Redmond et al's Moore 1, 550 ft from s and 1200 ft from e lines ne¼ S. P. sec 9, blk 6, dr 1310 ft.

Stephens County—J. P. Tolbert et al's R. Martin 1, 467 ft from n and 1400 ft from e lines, sec 1335, TE&L Co. sur, lcn for 4000-ft test.

COMPLETION

Jones County—Merry Bros. & Perini, Inc.'s Hodges 1, 330 ft out of nwc s½ A. Bell sur No. 6, A-15, abnd 2104 ft.

EAST TEXAS

FIRST REPORTS

Cherokee County—Shell's Mannes 1, 100-acre tr, J. M. Musquez sur, 4 mi s Reklaw, dk.

Leon County—Alexander & Wilhart's Mills 1, 1500 ft ne of sw line of M. Copeland sur and 1400 ft nw of se line of county border, 2½ mi e Normangee, rur for 4000-ft test.

Harrison County—Fohs Oil Co.'s Sypert 1, Richard Hooper sur, 2 mi sw Hallsville, lcn.

COMPLETION

Houston County—Shell's Dorsey 1, M. Sallas sur A-77, elev 393 ft, Georgetown 6718 ft, Upper Glen Rose 7962 ft, first anhydrite 9430 ft, massive anhydrite 9670-9770 ft, Pettit 10,658 ft, abnd 10,900 ft after pb and acidizing.

NORTH TEXAS

FIRST REPORTS

Archer County—E. D. Willis et al's Garvey 1, 900 ft out of SEc TE&L Co. sec 1855, lcn for 850-ft test.

Clay County—Carlos Wagner et al's L. C. Thaxton 1, T&NO and W. C. Donley sur, A-129, 3 mi e and 1½ mi n Henrietta, sp and sd on 5000-ft test. Gannaway & Ted Norwood's Taylor 1-B, blk 39, Bacon subdiv, lcn for 1250-ft test, Harvey Dr. Co.'s A. Culver 1, Specht-McCutcheon sur, ½ mi e Thornberry, lcn for 1300-ft test.

Jack County—Forbess & Rochelle's Carter 1, J. W. Williams sur A-877, testing sand 440-44 ft. Harper Pet. Corp.'s Manhooser 1-A, J. F. Lewis sur A-1277, lcn 2200-ft test.

Wilbarger County—O. M. Stidham & Son's Watts 1, c ne sw H&TC sec 64, blk 15, 2 mi n Doan, lcn for 5500-ft test.

Young County—Trentman Oil Co.'s Nall 1, 1500 ft from n and 1250 ft from w lines TE&L Co. sec 1996, sp and sd on 4500-ft test.

COMPLETIONS

Archer County—L. T. Burns et al's Meurer 1, lot 102, blk 4, Clark-Plumb sur, abnd 1228 ft. Deep Rock's McCarty 1, nwc sec 21, Chas. C. Brown sur, A-20, 2½ mi n and 5 mi e Megargel, Smithwick shale 4795 ft, Bend lime 4862 ft, abnd 5326 ft. Hedrick Oil Co. et al's Wilson-McCrory 1, swc ATNCL sec 94, Gunsight lime 1525-27 ft, Bend lime 4790 ft, abnd in salt water 4810 ft. Shappell Oil Co.'s W. Hale 1, blk 95, Harris Club subdiv, abnd 1404 ft.

Clay County—Apache Oil Co.'s Henderson 1, S. Hernandez sur, A-185, sand 1139-41 ft, pumped 268 bbls initial, O. N. Childs et al's W. C. Heard 1, P. Osborne sur, A-369, abnd 1350 ft. White & Austin's Hansard 1, west 29 acres of blk 47, Specht-McCutcheon sur, abnd 1359 ft.

Cooke County—G. V. Minnich et al's Stout-Brewer 1, J. Rodriguez sur, A-880 sur. Ellenberger 1850 ft, abnd 1905 ft. Mudge Oil Co.'s Bonner 1, w 61 acres of s½ of A. Emanuel sur A-1196, abnd in schist 2180 ft. C. E. Sykes et al's Hill-Christian 1, J. P. Bailey sur A-70, abnd 3165 ft.

Hardeman County—Roy I. Carter et al's Norton 1, sec 3, F. S. Roberson sur, A-1782, abnd in sandy lime 2024 ft.

Wichita County—G. P. Davis et al's Van Houston 1, sec H&GN sec 39, A-161, abnd 265 ft.

WYOMING

FIRST REPORT

Crook County—Continental Oil Co. & Vickers Pet. Co.'s 1, cnw sw 28-57n-64w, Government Canyon structure, Northeast Wyoming, lcn.

Ask to inject at Long Lake

The Texas Railroad Commission has scheduled a hearing for April 12, at Austin, to determine whether Trinity Gas Company should be permitted to inject gas through its J. W. Focke 1 as a part of its recycling operations in the Long Lake field.

WANTED: Amerada, Humble, or I. T. I. O. continuous recording bottom hole pressure gauge. Advise full particulars and price. P. O. Box 2249, Wichita Falls, Texas.

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San Antonio—Washington, D. C.

NOTES FOR THE Equipment Buyer and User

Reversible Wrenches

CHICAGO PNEUMATIC TOOL COMPANY

Two new power vane reversible wrenches have been announced by Chicago Pneumatic Tool Company, 6 East 44th Street, New York. The wrenches, similar in construction, employ a slow-speed rotary motor and have no gears or resilient member in

CP 365-R Reversible Wrench

the driving unit. They are designed especially for removing or applying staybolt caps, dome nuts, smoke box nuts, cylinder and valve chamber head nuts, front end nuts, washout plugs, and structural steel work. Model CP 365-R has a capacity of 1¼ inches bolt size, and model CP 375-R has a capacity of 1¾ inches bolt size.

Rock Bit

GLOBE OIL TOOLS COMPANY

Announcement has been made by Globe Oil Tools Company, Los Nietos, California, of a new rock bit, designated Series "J", designed for faster straight-hole drilling speeds in all formations.

It is manufactured in six general types, each type having variations adapted to different formations from surface hole to bottom. Type J-SD, for example, is for drilling in sticky shales, while Type J-XX is designed for fast hole in the hardest stratas. Between these two extremes there is a special type adapted to every formation and condition.

Two-way inner cutters, five leg cutter support, Hevi-Load bearings and Hydrokleen teeth are exclusive features. The two-way inner cutters give a double-action cutting surface for cutting

Globe Rock Bit

through the hardest formations with maximum straight-hole penetration. The fifth leg is an integral part of the bit body and provides strength for support of gauge and inner cutters. Instead of the gauge and inner cutters being supported from the outside legs only, each is anchored firmly on both sides by integral parts of the bit body. This added support also enables the cutters to maintain their proper alignment under heavy drilling loads and should assure maximum full-gauge hole on every run. The cutters rotate on large roller bearings, with ball thrust bearings to carry the heavy loads. The bearings are rigidly tested for long-wearing qualities. The heavily-faced Hydrokleen teeth are shaped so as to receive full benefit of circulation, which keeps them clean and in better digging condition, especially in sticky formations.

Engine

INTERNATIONAL HARVESTER COMPANY

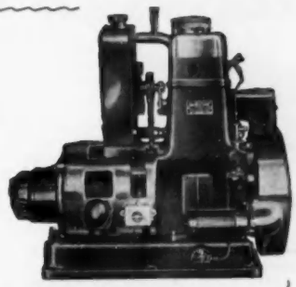
A new compact 4-cylinder, valve-in-head engine with 3-inch bore and 4-inch stroke, developing 22 horsepower when operating on gasoline at regular full-load governer speed of 1800 r.p.m., has been announced by International Harvester Company, 180 North Michigan Avenue, Chicago. The unit, Model U-2, may be equipped for operation on natural gas, distillate or kerosene, as well as gasoline.

Combination chamber is shaped to give control of rate of combustion and prevent engine knocking. An oil filter with an inexpensive replaceable element keeps the oil clean. A gear-type

International 22-H.P. Engine

1. POWER & LIGHT at LOW COST

Here's electricity for the light and power you need at the amazingly low cost of only ONE CENT a kilowatt. No worry about high lines being near or far from your job. WITTE Dieselectrics are always ready to serve you wherever you set your rig. And you pay for only the current you produce and use. Operate on cheap, non-explosive fuel. Reduce fire hazards.



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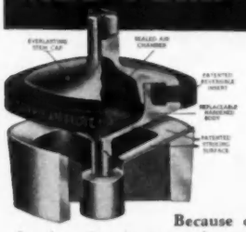


Because of the sealed - in air chamber that increases buoyancy . . . cuts fluid slippage . . . reduces impact . . . and gives more efficient valve action, MacClatchie "Airflote" Pump Valves insure superior performance and longer life under the toughest pumping conditions. Replaceable bodies, reversible inserts and everlasting stem caps give true MacClatchie economy.

MacClatchie "Streamlined" Pump Valves give you *high* quality at *lowest* cost! Of solid one-piece construction, they're streamlined at every point to assure unobstructed fluid flow. Valve Seats (interchangeable with "Airflotes") have 20% to 100% more striking surface than others, PLUS patented cross-bar construction.

All MacClatchie Valves are guaranteed against cutting out the pump. *See our representative or write direct to factory for details on this guarantee.*

MacCLATCHIE MANUFACTURING CO.
COMPTON, CALIFORNIA
Mid-Continent Distributor, BAKE TOOL COMPANY, Houston, Texas
Rocky Mountain Representative, E. C. DILGARD, Casper, Wyoming
Foreign, GEORGE E. WOODS, 17 Battery Place, New York, N. Y.

NOTES FOR THE Equipment Buyer and User

pump delivers oil under pressure to the engine parts through drilled passages. Main and connecting-rod bearings are of the replaceable precision type. The crankshaft is electrically hardened by a high-frequency induction process to make the bearing surfaces file hard, leaving the rest of the shaft tough and strong to withstand stresses. Cylinders are replaceable with exact duplicates, making longer engine life possible.

The governor is of lever-adjusted, variable-speed, fly-ball type and has full control of the throttle at any engine speed from 1000 to 1800 r.p.m. Governor springs giving close regulation at 1200 r.p.m., as required for generator service, are available.

Piston displacement is 113.1 cubic inches. Maximum net torque is 78 pounds-feet at 1000 r.p.m. The single-plate clutch is 9 inches in diameter and is of the over-center type. A spring-loaded clutch is also available. Approximate weight of the new U-2, less fuel, oil and water, is 665 pounds. Overall length is 50-11/16 inches; width, 20-5/8 inches and height, 40-1/4.

Bearing

A bulletin has been released by Dodge Manufacturing Corporation, Mishawaka, Indiana, covering its Dodge-Timken Interlock Pillow Block. In addition to information covering the new bearing, the bulletin contains selection tables, simple and conveniently arranged to make it easy to select bearings from the complete line made by the company to meet any condition of service. The bulletin is designated A-325.

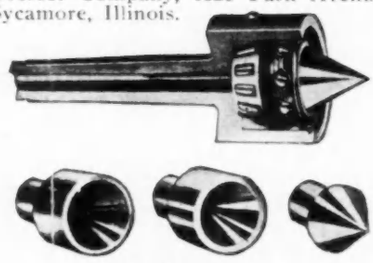
Traveling Block

The National Supply Company, Pittsburgh, has issued Bulletin No. 258 describing its Type T traveling block. It is illustrated and gives detailed construction and specifications.

Live Center

IDEAL COMMUTATOR DRESSER COMPANY

A new live center with interchangeable inserts or center pieces for holding centered and uncentered work has been announced by Ideal Commutator Dresser Company, 1525 Park Avenue, Sycamore, Illinois.



Ideal Live Center

Inserts available, which may be used interchangeably, include a male insert for work already centered, plain female insert for uncentered work such as armatures and drills, and female insert with three raised lands for uncentered work having a flat or burred keyway. The inserts are removed by a knock-out screw.

Dwight A. Davis Back With Continental Supply Company

Dwight A. Davis, who has been with The Continental Supply Company for 16 years, has reestablished his connection with the company after a short absence. He is now eastern district sales manager, and has offices in the Benedum-Trees Building, Pittsburgh.

DWIGHT A. DAVIS
Re-joins The Continental Supply Company.

Supply Personals

M. A. Guflaar and George Weber have joined the sales department of San Antonio Machine & Supply Company, San Antonio, Texas.

W. F. Rockwell, president of Pittsburgh Equitable Meter Company and Merco Nordstrom Valve Company, has been elected a director of the Commercial National Bank and Trust Company of New York.

Professor O. A. St. Clair recently conducted a group of 8 senior engineering students of Texas Technological College, Lubbock, on an inspection trip of the Houston foundry of Texas Electric Steel Casting Company. The plant inspection concluded a week's tour that included study of drilling and producing methods in North and East Texas fields.

NOTES FOR THE Equipment Buyer and User

Nicklin Export Manager for Oil Well Supply Company

Maurice E. Nicklin has been named manager of the export division of Oil Well Supply Company, succeeding Charles L. Lockett, Jr., who recently resigned. He will maintain headquarters in New York.

Born near Oil City, Pennsylvania, in 1900, Nicklin worked in various capacities in the Pennsylvania fields and later graduated from Pennsylvania State College with a degree in mechanical engineering. He spent 9 years in oil field service, sales and engineering capacities with Waukesha Motor Company in this country, South America and Europe. He joined Oil Well Supply Company in 1937, continuing in sales and engineering work.

MAURICE E. NICKLIN
Named Export Manager for Oil Well Supply Company.

Hercules Powder Company Names Officers and Committees

C. A. Higgins, president of Hercules Powder Company, Wilmington, Delaware, has announced the election of the following officers and members of committees for the ensuing year:

R. H. Dunham, board chairman; T. W. Bacchus, C. D. Prickett, G. G. Rheuby, L. N. Bent, and C. A. Bigelow, vice presidents; C. C. Hoopes, treasurer; H. F. Smith, secretary; E. B. Morrow, assistant treasurer and R. N. McAdams, assistant secretary and assistant treasurer.

Executive committee members are Higgins, chairman; Bent, Hoopes, Rheuby and Bigelow. Finance committee members are Dunham, chairman; Higgins, Hoopes, Rheuby, Morrow and Norman.

McKenna Metals Company Awards Contract for Laboratory Building

McKenna Metals Company, Latrobe, Pennsylvania, has awarded a contract to Blaw-Knox Company, Pittsburgh, for the construction of a new research laboratory adjacent to its No. 1 plant. The laboratory will be used for development of new applications of Kennametal, and for investigation of new intermetallic compounds.

The building will be of steel construction with insulated ceiling and roof. A large quartz spectograph, microscopes, high-temperature electric furnaces, chemical balances, a technical library and special tools for fabricating new shapes of Kennametal for form tools and dies are a part of the equipment to be placed in the laboratory when completed.

Guiberson Establishes Gulf Coast Division Headquarters at Houston

The Guiberson Corporation, Dallas, has established a Gulf Coast sales office in the Bankers Mortgage Building, Houston, and has stationed sales

The Continental Supply Company's annual two-day sales meeting, recently held in Dallas, was attended by 165 employes of the company. A feature of the event was a banquet, attended by 100 manufacturers' representatives. Guests included Frank Purnell and John W. Ford of Youngstown Sheet & Tube Company.

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The exclusive advantage of the Type G Otis Side Door Choke in permitting the use of gas from an upper horizon to produce a lower sand at controlled ratios is believed greatly responsible for the present heavy orders on this tool. A tubing formation packer is used to separate the oil and gas horizons, while the Side Door Choke exercises positive control over the gas introduced into the tubing.

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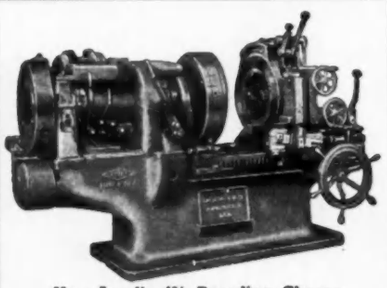

New Landis 4¾ Receding Chaser Pipe Threading Machine

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NOTES FOR THE Equipment Buyer and User

C. L. FORCUM

C. E. TWEEDLE

R. L. McADAMS

representatives at Alice, Texas, and New Iberia, Louisiana.

C. L. Forcum, working from the Houston office, specializes in oil tool sales. He served the company in other areas before going to the Gulf Coast.

C. E. Tweedle, who went to the Houston office from East Texas, specializes in gas lift engineering.

D. E. Whittenberg is located at Alice from where he serves the Lower Coast and Southwest Texas areas.

R. L. McAdams transferred from East Texas to New Iberia to handle sales in the Louisiana Gulf Coast area.

The Guiberson Corporation has additional warehouse facilities at Alice.

J. D. Fletcher and T. R. Farley Vice Presidents Tractor Company

J. D. Fletcher, export sales manager, and T. R. Farley, assistant to the president, have been elected vice presidents of Caterpillar Tractor Company, Peoria, Illinois.

Fletcher will continue as head of the export department, the position he has held for the past 10 years and in which he gained wide recognition in the field of international trade relations. He is a director of National Trade Council, Inc.

He was born in Pasadena, California, graduated from the University of California, and engaged in the shipping business. He served during the World War in the Marine Transportation Division of the Food Administration in Washington, and was also associated with the Commission for Relief in Belgium and the American Relief Administration, both in Washington and New York. He helped form an export company in New York following the war, and for 5 years participated in its growth. On June 1, 1929, he entered the employ of Caterpillar Tractor Company, and the following year was made export sales manager.

Farley, who is now abroad studying export markets, will retain his admin-

J. D. FLETCHER

T. R. FARLEY

NOTES FOR THE Equipment Buyer and User

istrative duties. Born in Ipswich, Massachusetts, he was educated in eastern schools and specialized in engineering. Upon graduation, he went to work for the New England Telephone and Telegraph Company, and later for the Pierce-Arrow Motor Car Company. In 1916, he enlisted in the United States Army. He was discharged in May, 1919, with rank of captain. In June, 1919, he went to work for The Holt Manufacturing Company, one of the predecessors of Caterpillar Tractor Company. When the present company was formed, he continued as an employe and rose steadily to his position as assistant to the president.

Smith Handling Foreign Sales for Grant Oil Tool Company

Roland E. Smith has joined Grant Oil Tool Company organization as factory foreign sales representative, and will maintain headquarters at the firm's offices, 2042 East Vernon Avenue, Los Angeles.

ROLAND E. SMITH
Joins Grant Oil Tool Company

Smith formerly was associated with John H. Baird, New York, in foreign representation of various lines of oil field equipment, and previously was connected with Byron Jackson Company in foreign and domestic sales work, including field service in California.

His outside activities cover a wide range of interests, including membership in the Los Angeles Chapter of Nomads, fellow members of which—as well as his many friends—wish him success in his new duties.

Walter G. L. Smith on Tour of United States Oil Centers

Walter G. L. Smith, president and general manager of E. M. Smith Company, Los Angeles, manufacturers of Grizzly oil field products, left Los Angeles by air March 15 for Dallas on the first leg of an extended business trip. After spending some time in the Mid-Continent, he will fly to New York, visiting other important oil districts on the return trip.

G. L. SMITH
President, E. M. Smith Company

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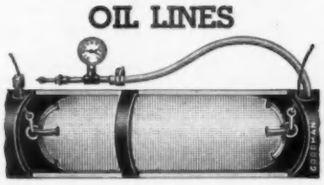
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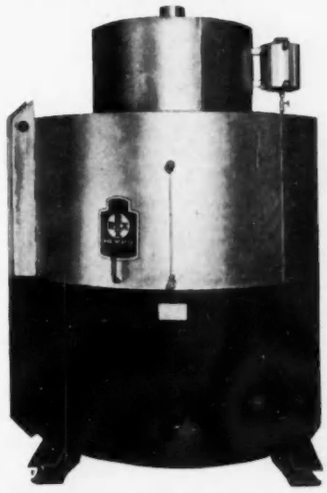
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HOUSTON U·S·A TEXAS

Squeaks from the Bull Wheel

A.A.P.G. Reminiscence

When old timers get together at Chicago during the A. A. P. G. meeting to talk over old times, many will recall the program of entertainment at the Houston gathering in 1924—the association was young. A highlight of the program was rendition by R. B. Whitehead, to his own piano accompaniment, and to the tune of "Alice Blue Gown," of a sad lament of which the following are two of six stanzas:

When they strike oil on my daddy's farm,
Where they're drilling just south of the barn,
The credit'll be due to a rock hound, that's true,
But a horse shoe did aid him, he had something new.
It's the spot where dad buried our cow,
And some gas bubbles up then and now,
That old cow had a rep, so the crude should have pep,
When they strike oil on my daddy's farm.

* * *

When they strike oil on my daddy's farm,
Where they're drilling just south of the barn.
That oil should be there, for they've tried everywhere,
Digging holes every acre, they guard 'em with care.
They put dynamite down in the ground,
Then they wait to see how it sounds.
They've shot the farm full of holes, so the story'll be told,
When they strike oil on my daddy's farm.

A New Kind

A professor of geology used to encourage his class to bring specimens of minerals, for classification, description and analysis. One of the students, thinking to play a joke on the professor, took an irregularly shaped piece of common brick, discolored and stained it, and brought it in.

The professor, taking up the first specimen shown him said, "This is a piece of copper ore from Michigan." Of the second he said, "This is a piece of lead-zinc ore from Missouri." Then he came to the "fake" specimen. "This," he said, "is a piece of impudence from some member of this class."

He Was Elsewhere

"Henry, you may tell us about the Caucasian race."

"I didn't see it. I went to the ball game."

A Great Loss

"Jones, can you tell us who built the sphinx?"

"I—I did know, sir, but I have forgotten."

"How unfortunate. The only man living who knows, and he has forgotten."

Perfect Politeness

"You have heard what the last witness said and yet your evidence is to the contrary. Am I to infer that you wish to throw doubt on her veracity?"

"Not at all I merely wish to make it clear what a liar I am if she's speaking the truth."

In the Offing

"I want to divorce my husband."

"What for?"

"Oh, you wouldn't know him."

Profiting by Example

"What is your name?" asked a teacher of a boy. "My name is Jule," was the reply; whereupon the teacher impressively said, "You should have said 'Julius, Sir.' And now, my lad," turning to another boy, "what is your name?" "Billious, sir."

Proof

"And so we find that heat expands things and cold contracts them. Can anyone give me an example of this?"

"The days are longer in summer."

Languages

How is your boy getting along in school?

Very well, especially in languages. I just got a bill for three courses. Twenty-five for Latin, fifty for Greek, and one hundred for Scotch.

Sister's Crisis

"Dick is to ask father's consent this afternoon. I feel nervous about it."

"Are you afraid your father won't give his consent?"

"No; I'm afraid Dick won't turn up."

That's All

"Darling, were you faithful while I was away?"

"Oh, George, I was kissed twice."

"By whom?"

"The Orchestra and the Rotary Club."

Venus

"Calf?"
"Fourteen inches."
"Thigh?"
"Nineteen inches."
"Neck?"
"Yes!"

The Elevator

The little country girl went shopping in the big city with her mother, and had her first ride in an elevator.

"Did you enjoy it?"

"Yes, but it was so funny. When we went into the little house, the upstairs came down."

Bing!

"Don't you enjoy those slow motion pictures of horse races?"

"No they remind me too much of the horses I always bet on"

That's Different

"How can I teach a girl to swim?"

"Take her to the beach, lead her in, put your arms around her—"

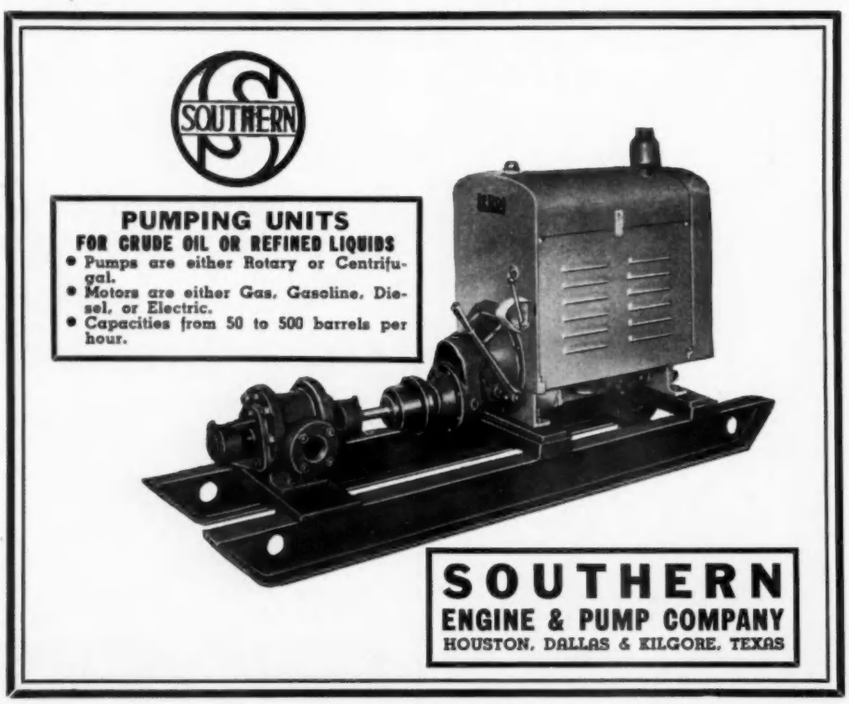
"But she's my sister."

"Aw, push her in."

Everything Red But the Ink

From Shanghai, via the London Sunday Times, comes a story of a Russian living there who took out Soviet papers and returned to the U.S.S.R. Before leaving, he told his friends that if his first letter was written with blue ink, everything he said would be true. If, however, he used red ink, the conditions he described would be exactly the opposite of the actual facts.

A letter arrived, written in blue. "Life in Russia is wonderful," said the writer. "I have found a comfortable room for a small sum, and my wages allow me to go to theaters, cinemas and art galleries, and to buy good books. There are milk, eggs, bread and meat in abundance. The only thing I cannot find is red ink."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